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How Electric Traveling Crane Came

Developed from Other Power-Driven Units—Growth in Size, Adaptability and Usefulness—Safety Features

ONE of the most interesting romances of modern industry is the development of the electric traveling crane, which has advanced hand in hand with the development of the manufacture of steel. The modern crane is a link in the chain of production in the steel-making industry without which the steel plant of present day capacity could not have come into being. And without these plants and cranes of great capacity the cost of making steel would not have been brought down to present levels.

In this age of rapid advancement there are probably few of the younger generation who realize that the first electric traveling crane was not built until well along in the 80's, the first three-motor crane was not placed in operation until 1890, and it was not until 1893 that an order was placed for electric traveling cranes to equip fully a steel plant. The industry is of so recent origin that it still has among its active leaders a few of the men who helped to develop and build the first electric traveling cranes and who have devoted their life work to it.

One of the pioneer crane builders is W. H. Purcell, president and general manager Alliance Machine Co., Alliance, Ohio. Mr. Purcell has a fund of interesting reminiscences regarding the electric crane-building industry in its early days, its struggles to get on its feet, its perseverance and its ultimate success. He recently consented to recount some of these for THE IRON AGE readers.

England Supplied Our First Traveling Crane

"The first traveling crane used in this country," he said, "was a square shaft, steam-power-driven crane, one of which was brought from England. The shaft, which ran the full length of the building, was belt-driven from a steam engine. At the end of the shaft was 'a loose and fixed pulley,' the belt being shifted from the one to the other pulley to start and stop the shaft. The power from the shaft was transmitted to the crane through a series of clutches driven through gears and sleeves, the latter over the shaft. There were clutches for the hoist, bridge travel and trolley travel. As separate clutches were required for each forward and reverse movement, there were six clutches in all. If an auxiliary hoist was required, another set of clutches was added.

"The first square-shaft crane made in this country was built by the late T. R. Morgan, Sr., in the plant of the Morgan Engineering Co., Alliance, which, in addition to other mill equipment, was engaged in the manufacture of hydraulic operated jib cranes that were generally used in steel plants before the introduction of the electric traveling crane. Soaking pits in those days were built in a circle, so that they could be served by

MR. PURCELL has grown up with the electric traveling crane industry from boyhood. He was an apprentice machinist in the plant of the Morgan Engineering Co. when T. R. Morgan, Sr., built the first one-motor electric traveling crane. In 1901 he organized the Alliance Machine Co. and started to build electric cranes and is now rounding out his twenty-fifth year as a crane builder. In his organization, when it was first formed, were eleven men who worked on the first electric traveling crane. Six of these men are still employed by the Alliance Machine Co. One of the pioneers in the industry, who has worked hand in hand with Mr. Purcell, is F. A. Carter, general sales manager of the company. Mr. Carter also learned the machinist trade at the Morgan plant and he was the erector of America's first electric traveling crane.

an hydraulic jib crane. The hydraulic crane built by Morgan was designed by the late S. T. Wellman of Cleveland. Another builder of hydraulic cranes along about that time was Henry Aiken of Pittsburgh. The second square-shaft crane was built by William Sellers, Philadelphia, and about that time the Yale & Towne Mfg. Co. brought out a rope transmission crane, using the rope drive to get away from the square shaft.

First Electric Traveling Crane

"The square-shaft crane led to the development of the first electric traveling crane, which was a one-motor crane brought out around 1881. This, also, was built at the Morgan plant. In the one-motor crane the long square shaft was eliminated and a motor, that took the place of a steam engine, operated the longitudinal drive through a main drive shaft and clutches. A short time after the development of the one-motor crane a rope-drive crane operating in Milwaukee collapsed and killed the operator.

"The E. P. Allis Co., Milwaukee, now the Allis-Chalmers Co., had an engineer named Shaw. He visited the Morgan plant and there saw the drawings which had been made for a three-motor crane. Mr. Shaw went home and designed a three-motor crane, which he had built by the Pawling & Harnischfeger Co. That was the first three-motor crane built in America. It was placed in operation in 1890. Later Mr. Shaw organized the Shaw Electric Crane Co. and went into the manufacture of cranes on his own account.

"In the early days of the industry electric cranes were very crude, although they showed a great advance over the square-shaft power-driven cranes. Capacities were low and speed was slow. A 30-ton crane had a speed of 6 ft. per min. on the main hoist, or about one-fourth of the present speed. The starting mechanism was a wonderful contraption for that day and time. This was brought out by Mr. Thompson of the General Electric Co. It consisted of resistance plates and mica plates placed alternately. All the variations in resistance could be secured in the rheostat. Sometimes the resistance was too high and sometimes too low. If it was too low they put saltpeter on the plates to produce rust and cause more resistance and get a better movement of the crane. There were brakes of all kinds, but the spool type gave the best results.

Testing Early Cranes

"It was a wonderful event for the people in the plant and the vicinity when a crane erector in the early days had an electric crane ready to test out. Spectators were skeptical and expressed great doubt as to whether enough power would come through a small copper wire to lift 20 or 30 tons. Many offered to make bets that the thing would not work. It was not uncommon for erectors to have a supply of graphite in the form of Rising Sun stove polish for lubrication, to keep down the heat and get an easy movement on the longitudinal travel. Nor was it unusual to drop resin on the brake band to help the electric brake hold the load and to prevent slipping.

"When the electric crane was in its infancy the General Electric Co. took on a lot of college graduates and taught them as much as possible about electricity. These young fellows were called experts and they helped out crane erectors in their electrical troubles. But it was not long before the erectors knew as much about the electrical parts of traveling cranes as the so-called experts. These latter, who now have become real experts, are leaders in the management and operation of steel plants and shops. They have made possible the great strides which have been made in the handling of metal.

"Those who were crane erectors in the early days could tell many amusing stories of their experiences. They met lots of trouble, but through it all they were successful. With the help of the engineers they worked out of their difficulties. Various problems were encountered which are no longer met by the crane erector. One of the early cranes of the square-shaft type with a shaft 420 ft. long was erected in the Watervliet Arsenal. This shaft was made in 30-ft. sections which were welded together on the job. This is just an example of one of the problems with which crane erectors in the old days were confronted.

Evolution in Steel Mill Cranes

"Steel mills 35 years ago had 10 to 15-ton hydraulic ladle cranes for handling the hot metal, but these were superseded by 75-ton electric traveling cranes. Within two or three years these proved too small and they went to cranes of 125-ton capacity and very quickly to 150-ton ladle cranes. Now a 200-ton ladle crane is not uncommon.

"The Homestead Works of the Carnegie Steel Co. was the first big steel plant that went definitely to the use of electric cranes.* Thirteen 10-ton cranes were bought for this plant in the World's Fair year of 1893. However, a few electric traveling cranes were used in steel plants prior to that year.

"Other electrical handling equipment for steel plants, such as charging machines, strippers and manipulators, have progressed at a rate corresponding to the advance made in traveling cranes. Mill officials get an idea and put it up to the crane builder, or the crane builder gets the idea first and puts it up to the mill men. Together they have worked out the problems of handling material that have resulted in greatly increasing the output and decreasing the costs. One of the important developments in crane building in the past 10 or 15 years has been the double bridge drive for open-hearth ladle cranes. The advantage of this is that the drive on all four wheels provides better traction and better control in pouring steel in the ingot molds, doing away with the car pushers universally used in steel plants before its installation.

The Push for Size

"There has been a continual tendency toward cranes of larger capacity and higher speeds. Electric traveling cranes are now being built with a hoisting speed of 15 to 200 ft. per minute on the main hoist and with a bridge travel of 200 to 600 ft. per min., while carrying a load of from 20 to 225 tons. Open-hearth ladle cranes are now operated at a speed of 10 to 25 ft. on the main hoist and have a bridge travel of 250 to 300 ft. per min. while carrying a 125-ton load of metal or a load of 175 tons, including the ladle. Special cranes used for handling metal during tempering, and requiring quick handling, have hoisting speeds up to 200 ft. per min. and are under absolute control, due to the great progress made in controlling devices.

"The largest traveling cranes ever built were erected by the Alliance Machine Co. in the Washington Navy Yard during the war. There are three of these cranes designed to be used for handling 20-in. guns† and each crane has combined handling capacity of 430 gross tons. Each is equipped with a 300-gross ton main hoist and can raise the largest locomotive, carry it the length of the plant—500 ft.—and lower it onto another track within 2 min. from the time the operator is given the signal to lift the load. We built a 225-ton crane for the Bethlehem Steel Co. that has a hoisting speed of

*This fact was interwoven with the history of the disastrous and bloody strike at that plant in the summer of 1892.—EDITOR.

†Ultimate capacity of the new gun shop at Washington was for 20-in. guns 50 calibers (85 ft.) long. No such mammoth weapons have ever been built. The largest were the 16-in. 50-cal. guns for the battleships and battle cruisers scrapped after the Washington Conference.—EDITOR.

120 ft. per minute. This was designed for shrinking jacket sections on guns.

"The Homestead Works of the Carnegie Steel Co., which was the first to be completely crane equipped, will soon have the largest steel plant crane, an order for this having been placed with our company a few weeks ago. This will be a 275-ton crane for changing mills complete. With this crane a mill will be lifted from its foundations and another set in its place, instead of changing the rolls, as is done at present.

Achieving Safety in Operation

"'Safety First' was not a slogan in the early days of the electric traveling crane and the first cranes had no safety features. Today safety devices are the most important features of a crane. Cranes are designed from the standpoint of safety, both to the employees and to the plant. Today there is not one accident from crane operation as compared with 100 formerly, which is a remarkable record, in view of the large increase in the number of cranes. The standard factor of safety now on the main hoist of ladle cranes is 10 to 1, and the factor of safety on all other parts is proportional. In the old days the factor of safety was 5 to 1. Double cables have succeeded the single cables and, if a cable should break, there is still a 5 to 1 factor of safety."

"What will be the crane of the future?" Mr. Purcell was asked.

Worm Drive and Roller Bearings

"The adoption of the worm drive will be an outstanding feature," was his reply. "One of the first traveling cranes built, which was erected in the Lynn, Mass., plant of the General Electric Co., had a worm drive, and this type of drive is coming back. It will be the drive of the future, taking the place of the spur gear for all motions. The worm drive will be adopted because with this drive the mechanism is more compact, there is greater accessibility to parts and there are fewer parts to look after.

"In addition to the worm drive the crane of the future will have roller or ball bearings throughout. Several traveling cranes completely equipped with roller bearings are now being built. Today all the big cranes are being laid out with roller bearings and many with worm drives. The crane of the future will also be larger. There has never been a backward movement in the size of cranes. Costs in steel plant operations will probably be lowered by using larger cranes than at present."

ELECTRIC WELDING TESTS

Built-Up Plate Girder Tested for Strength—Welds Withstood Heavy Stress

WASHINGTON, Aug. 23.—Electric arc welding tests made last week at the Bureau of Standards were a forerunner to an extensive investigation of welded steel structures being planned by the American Bureau of Welding, 29 West Thirty-ninth Street, New York, and also were preliminary to the erection at Sharon, Pa., of a building by the American Bridge Co., for the Westinghouse Electric & Mfg. Co. (See page 344, THE IRON AGE, Aug. 5.)

This structure is to be arc welded and it was the purpose of these tests, in part, to make sure of the practicability of fabricating the building at Sharon by that means. The tests were made by the engineering mechanics section of the bureau, in cooperation with the American Bridge Co., represented by James H. Edwards, assistant engineer, 71 Broadway, New York, who is a director of the American Bureau of Welding.

What the Structure Was and How It Was Tested

Electric arc welding was used by the American Bridge Co. to fabricate some steel plates, to determine the difficulties which might arise in using this process. The result was a plate girder 15 ft. long, having a web plate ⅛ in. thick and 24 in. deep. The flanges were 12 in. wide, one 1¾ in. wide and the other 1⅞ in. thick. Cover plates 9½ in. wide and nearly as thick as the flange were used on both the top and the bottom flange. Nine stiffeners on each side were welded to both flanges and to the web.

To determine the strength of this structure, particularly whether or not the welds were satisfactory, it was brought to Washington from Ambridge, Pa., an Olsen hydraulic testing machine, having a capacity of 10,000,000 lb., was used, loading the girder at the middle of a 13-ft. 6-in. span. The engineers of the American Bridge Co. had estimated that, if the welds were sufficiently strong to develop the full strength of the web, the girder should carry a load of about 410 tons. The maximum load on test was somewhat greater than this estimate, and the welds connecting the web to the top flange failed at the ends only after the web was buckled and the girder had deflected several inches.

To Procure Basic Information

The investigation to be undertaken by the American Bureau of Welding will be planned to secure fundamental data on welded structures which will enable an engineer to design safe structures. It was declared probable that a saving in the cost of steel structures will be one of the ultimate advantages. A press statement given out by the department said that "The welding process promises to give the construction industry a new procedure, more rapid fabrication, installation at lower cost and welcome relief from the noise of riveting."

Whatever the outcome may be, it was pointed out that many metal structures are being welded, including steel barrels, office furniture and automobile bodies. But whether or not a steel bridge or the framework of a skyscraper can be welded economically is another question.

Record Number of Anti-Trust Cases Concluded

The Department of Justice, Washington, has announced that it probably made a record in the number of anti-trust cases concluded during the past year. The showing is attributed to a vigorous effort to close up an accumulation of old cases. The Government, it is stated, was compelled to drop seven cases following the decisions of the Supreme Court in the maple flooring and cement cases, which legalized certain phases of national trade association activities. Other features of the operations of the department under the anti-trust law included the practice of terminating civil suits by the entry of consent decrees and the plan of proceeding against the proposed combinations in advance of their formation. Out of a total of 111 decrees obtained by the Government in civil suits, 67 were consent decrees. The department contends that in proceeding against proposed combinations before they are organized time and money are saved by avoiding suits and long dissolution proceedings.

Speaking of alleged combinations based on patent monopolies which are the objects of suits, the department states that the patent laws and the trust laws have different, and to some extent, conflicting purposes, and that the problem of reconciliation is an important and difficult one. In cases of this character the Government asserts (1) that combinations or pools of competing patents (as distinguished from merely overlapping patents) are violative of the law; (2) that the restraints which may be legally imposed in licenses under patents or in sales of patented articles must be no greater than are necessary to protect the patent monopoly; and (3) that, in any event, the patents relied on must be valid patents sufficiently broad in scope really to cover the production of the articles in question.

Tests on Gas-Welded Roof Trusses*

Demonstrating the Application of Engineering Principles and Procedure Control to Oxy-Acetylene Welding of Structural Steel

DURING April and May tests were conducted at the Buffalo shops of the Linde Air Products Co. on some oxy-acetylene welded steel roof trusses. A practical and sound method for fabricating structural steel by oxy-acetylene welding was sought. For three or four years the company has had numerous calls in connection with welded fabrication and repair of highway and foot bridges, garage, warehouse and pump-house buildings, tank towers and many other minor structures, utilizing everything from new or second-hand pipe to structural plates and shapes.

Sound engineering principles were often disregarded, engineering analysis was frequently lacking and the results obtained varied greatly in detail and could not be satisfactorily interpreted. In consequence to be in position to render more intelligent service in this new application, the company began to study structural welding and to carry out experimental work.

A standard building was selected, the design of the details of which could be experimented with in the laboratories; the trusses could be built and placed in a new building. This structure was of one story, with roof of 40 ft. span, having one-quarter pitch and without monitors.

Initial studies produced what has been termed the "insert plate joint." It was developed while trying to place web metal concentrically around center lines in a theoretical diagram, and by adding long steel rectangles on either side of this web metal, to obtain sufficient area and rigidness for a practical structure.

Angles, tees and tubular sections were tried with this idea as a basis for joint design. For each shape an elementary truss design was studied, thus determining the style of the joints that must be developed to complete a truss structure. An "ideal" joint is shown in Fig. 1.

The next and obvious problem consisted of transferring the full strength of members having lateral metal into the web plate or into a single flat plate, somewhat as shown in Fig. 2. This sketch suggested the insert plate design; a typical application, as used in the tests, is illustrated in Fig. 3.

A portion of the leg of members *a*, *b* and *c* has been removed. An insert plate, fashioned as shown at *d*, *e*, *f*, *g*....., placed in the planes of the longitudinal legs of the tee-shaped members *a*, *b* and *c*, supplies the necessary metal for transfer of stress at the joint. Union of these several parts was accomplished by oxy-acetylene butt-welding where the metal joined metal. The result was a homogeneous plane of metal transferring the applied forces by means of welds in tension and shear in members *a* and *c*, and in compression and shear in member *b*. Briefly such a design provides several advantages:

1—Center of gravity lines of the members converge at the true intersection points.

2—All principal welds are placed at or near the center of gravity of the member joined.

3—The major portion of the welds function in shear.

4—All metal is joined with butt welds.

5—All metal joined may be placed symmetrically in regard to the axial plane of the main structure.

6—A non-rigid weld at the terminal of each member.

7—Easy means for rounding out the weld ends or filleting the finish (as shown by the dotted lines in Fig. 3), thus avoiding abrupt angles.

*From a report prepared by H. H. Moss, Linde Air Products Co., 30 East Forty-second Street, New York.

Design of Several Trusses

Designs were prepared for a series of trusses of 40-ft. span, one-quarter pitch, spaced 15 ft. center to center, to withstand a load of 40 lb. per sq. ft. of horizontal projection. All loads were disposed vertically at each panel point and summed up to 3000 lb. per panel, there being seven panel points of concentrated loading, not including those at the end supports (Fig. 4). From these loads the working stress for each member was determined.

For comparison it was necessary to study a riveted truss from the same specification. Design and fabrication were done by a reputable concern, which furnished the truss material for both the riveted truss (Case 2 below) and its direct competitor (Case 3), all of which material was secured from the same rolling, and the physical properties of which were recorded. The yield point of this steel averaged 40,000 lb. per sq. in.

All trusses except the tubular one were similar with respect to the upper and lower chords, being composed of two 3 x 2½ x ¼-in. angles and two 2 x 2 x ¼-in. angles respectively. The top chord angles of the welded trusses were placed tightly back to back, whereas in the riveted truss these angles were spaced apart ¼ to 5/16 in.

Case 1—Welded—Preliminary test truss. This truss had an identical member design with Case 4, except that the main strut was made of two 3 x 2½ x $\frac{7}{16}$-in. tees. This truss was welded in quarters, then in halves (each side of the ridge joint). Afterward field joints were made at peak and third points in the lower chord. Gusset plates, ⅛ in. thick, made up of two ¼-in. plates.

Case 2—Riveted—Main web diagonals from ridge to field splice at lower chord, two 2 x 2 x ¼-in. angles. Main web strut, two 2½ x 2 x ¼-in. angles. Substrut, one 2 x 2 x ¼-in. angle. Sub-tensional diagonal, one 2 x 2 x ¼-in. angle. Gusset plates, ¼ in. and $\frac{7}{16}$ in.

Case 3—Welded—Same composition and disposition of angle members. Gusset plates, ⅛ in., made up of two ¼-in. plates, each welded into the ¼-in. legs of each member at a joint.

Case 4—Welded—Same composition as Case 2, except that the main web tension diagonals were two 1½ x 1½ x ¼-in. angles. Sub-struts and sub-tensional diagonals, two 1½ x 1½ x ¼-in. angles.

Case 5—Welded—Tubular sections. Upper chord, 3-in. nominal size standard black pipe. Lower chord, 2½-in. Main strut, 2½-in. Main tension diagonals, 2 in. Remaining web members 1½ in.

Welding Procedure

The welding procedure governing Cases 3, 4 and 5 consisted of first welding the insert gusset plates into the principal truss members, after which these members were straightened, where necessary, by the aid of a heating torch. Next, the partially welded members and the remaining web members were assembled into the truss form, clamped together and tack welded. The final welding progressed from this point.

Summary of Results

Case	Kind of Truss	Comparable Weight of Trusses, Lb.	Maximum Panel Load, Lb.	Factors of Safety Developed	Average Deflection, In. Panel Loads in Lb. 3,000	6,000	9,000
1.	Preliminary truss, welded	1,199	10,285	3.42	0.28	0.62	1.02
2.	Riveted truss	1,161	9,000	3.00	0.29	0.635	...
3.	Direct competitive, welded	1,079	10,318	3.44	0.25	0.585	1.095
4.	Symmetrical truss, welded	1,079	10,043	3.34	0.335	0.695	1.13
5.	Tubular truss, welded	916	8,877	2.96	0.285	0.655	...

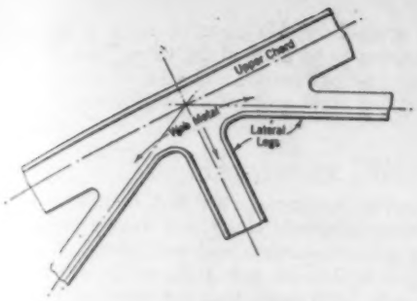


Fig. 1—"Ideal" Joint Between I-Beam Sections

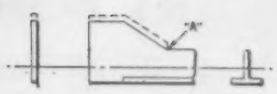


Fig. 2—Study of a Joint Between Structural Shape and Gusset Plate

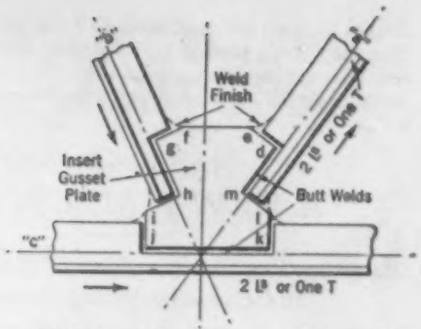


Fig. 3—Typical Plate Insert Joint for Angle Sections

This procedure was adopted after experimenting with several procedures with Case 1. Due to the use of two ¼-in. insert plates at each joint, double "V" welding was approached, as each truss half, after being welded throughout on one side, was turned over and again welded on the opposite side.

Method of Testing

The trusses under test were supported at either end by concrete piers, one providing for rigid anchorage, the other with a set of rollers and a rocker casting placed between bearing plates. Approximately 40 tons of pig iron was accurately weighed for the test, each pig having its correct weight painted on in white numerals. Seven platforms, suspended from the seven panel points (*W* in Fig. 4), carried the load of pig iron.

Truss deflection was measured against a tightly drawn steel wire secured to the gusset plates at either end of the truss. Uniform loading was obtained by adding a pig consecutively to each platform. Deflection readings and stress investigations were taken at panel loads of 3000 lb., 6000 lb., 9000 lb. and 10,000 lb. Above 10,000 lb., load was added 70 lb. at a time (the average weight of one pig) up to point of failure.

Strain Gage Work

Strain gage readings were taken on both sides of each member of each truss to determine the effect of residual welding stress in such a structure, and to study its elastic action. Gage readings were carefully taken at each station at the following load conditions:

1—Dead truss weight, including weight of the purlins and hangers but without the platform weight.
2—With platform weight added.
3—At 3000 lb. per panel, the design load.
4—At 6000 lb. per panel.
5—At 9000 lb. per panel.
6—At 10,000 lb. per panel.

The fifth and sixth readings could not be made for the riveted and tubular trusses, because they reached their ultimate strength slightly below 9000 lb. per panel. Typical stress curves are shown in Fig. 4, plotted against the theoretical stress of the member. It will be noted that the stress as determined by the strain gage agreed closely with the theoretical. It indicates within a narrow margin ideal behavior of stress distribution and development in the members of a welded truss.

Summary of Load Tests

In each case typical column failure of the upper chord between panel points occurred. Three cases failed at the rigid end of the truss and two at the free or movable end. At no time was there any indication of joint distress. Approaching failure, by passing the maximum strength of the upper chord, was evidenced by Luders lines appearing in the cement coating. In the riveted and tubular trusses these distress signals appeared before the 9000 lb. panel load was reached. The loads and factors of safety developed in each case, the weight of each truss and the recorded deflections up to 9000 lb. panel load are given in the table.

Results of these tests, which afforded splendid opportunity for observing the habits of welded construction under conditions of extreme stress, point toward a saving in metal in all members below the top chord. Furthermore, the theoretical amount of metal can probably be used in the secondary web members, now generally heavier than necessary to take the stresses, without causing difficulties as far as welded fabrication is concerned. However, for uniformity of the welded joint, a minimum thickness of ¼ in. seems to be desirable for this type of structure.

Further investigations along this line are now being made and a sixth case, designed from the load specifications governing the previous five, will be developed. This case will utilize rolled tee sections in all tension members and in the sub-struts, having areas agreeing closely with the theoretical requirements and joined by the insert plate method.

Conclusions Reached by the Investigator

It is apparent that the insert plate joint is a step toward the solution of the problem of joining structural steel by oxy-acetylene welding. The summary in the table shows a rigidity in favor of welding of approximately 15 per cent. The upper chord angles in the welded trusses were placed tightly back to back, which would be expected to lower the lateral strength of these columns as compared with angles spaced slightly apart.

Welding by this method does not inject negative factors of strength in a completed truss structure, nor in the base metal adjacent to the welds. This is evi-

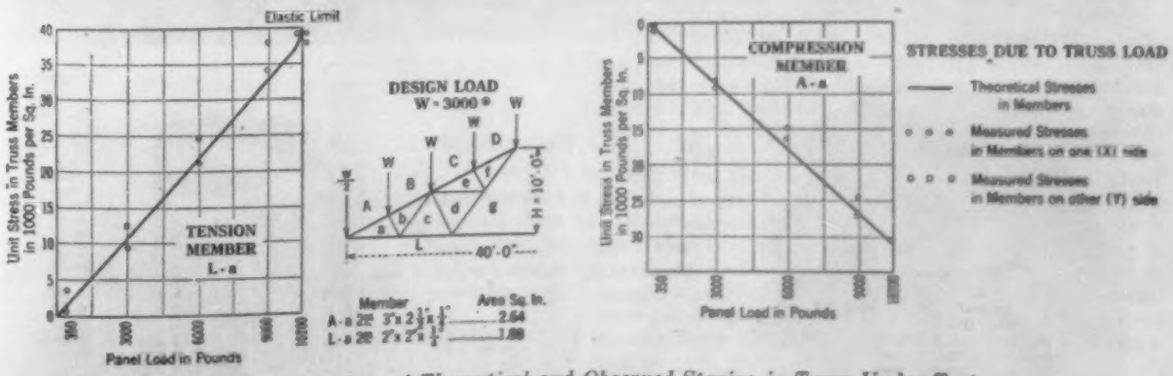

Elastic Limit
Unit Stress in Truss Members in 1000 Pounds per Sq. In.
TENSION MEMBER L-a
Panel Load in Pounds
DESIGN LOAD W = 3000 #
H = 10'-0"
L
40'-0"
Member
Area Sq. In.
A-a 2 3" x 2½" x ½"
2.64
L-a 2 2" x 2" x ½"
1.88
COMPRESSION MEMBER A-a
STRESSES DUE TO TRUSS LOAD
Theoretical Stresses in Members
Measured Stresses in Members on one (X) side
Measured Stresses in Members on other (Y) side

Fig. 4—Comparison of Theoretical and Observed Strains in Truss Under Test

denced by both the load tests and the strain gage work. The shop work proved to be simple and attended with few minor difficulties. Good alinement of members was maintained by following recognized welding practices.

Engineering control on this class of work is imperative. Much remains to be done along these lines, from an engineering and proof testing standpoint, before the welding of structural steel will enjoy confidence.

A NEW J. & L. STEEL

Machinability Combined with Unusual Forging and Case-Hardening Properties

A new steel, known as Jalcase, which is adaptable for forging and case-hardening and yet has the machinability of ordinary free-cutting steels, has been developed by the Jones & Laughlin Steel Corporation. Since the advent of the automobile and high-speed motors in which steel is subjected to severe service conditions and is required to withstand abrasive wear and repeated shocks, use of ordinary grades (Bessemer screw stock, S.A.E. 1112, and open-hearth steel, S.A.E. 1120) for vital parts has been largely discontinued and their place taken by the more costly alloy steels. This change not only has meant higher steel costs, but also materially higher shop costs because of the lack of free-cutting properties in the alloy steels.

The Jones & Laughlin Steel Corporation has carried on research and experiment for several years for the production of a steel susceptible to heat treatment, in which good forging and case-hardening properties were combined with machinability. The result was a new steel which was placed upon the market in a limited way several months ago and, having had the test of actual use by a number of consumers of case-carburized steel, is now being openly marketed. Among the uses to which it has been applied successfully are shafts, gears, gear carriers, chain rollers, disk clutches, steering worms and camshafts.

Some tests of the new product have given interesting results. In a forged partly case-hardened gear carrier it was found that the machining speed was increased 34 per cent and the feed 45 per cent, which worked out ultimately to a total increase in production of 94 per cent, as compared with S.A.E. 1020 steel. Upon the completion of 108 pieces on an automatic machine, the tools were in good condition, whereas commonly the cutting tools are reground after turning 50 pieces.

On a test of case-hardened chain rollers, made on 1⅛-in. rounds, there was a 25 per cent gain in production. For the camshaft of a high-priced automobile, it was found that there was an increase of 50 per cent in drilling speed, a reduction in carburizing time of 15 per cent, considerably less distortion, thereby reducing the straightening cost, and the case tested 65 to 69 Rockwell hardness (C scale) and was free from soft spots, the comparison again being with S.A.E. 1020 steel.

In cutting disk clutches, 700 pieces of the new steel were cut with one tool, against an average of 150 pieces of S.A.E. 1020 steel. An increase of 5 to 10 points in scleroscope hardness over S.A.E. 1020 steel was noted in a case-hardened shaft, not drawn because of the desire for a hard surface and soft core. A surface cutting speed of 180 ft. per min., or 29 per cent increase over S.A.E. 1020 steel, was achieved on a test of a timing sprocket and, where the latter had to be quenched in oil to minimize distortion and sand-blasted to remove adhering oil and scale, the new steel was quenched in water.

Case-hardened steering worms of Jalcase steel machined 23 per cent faster than S.A.E. 1020 steel, showed a normal case free from soft spots and tested 60 Rockwell hardness (C scale).

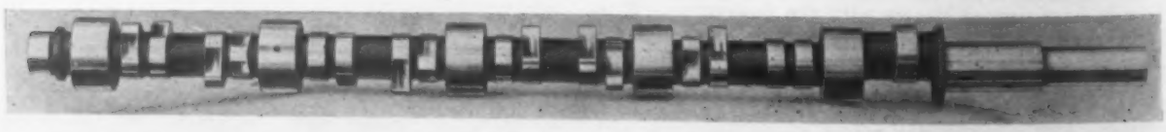
It has been determined by a series of tests and in use that the rate of carbon penetration is greater by 15 to 25 per cent than in some grades of case-carburizing steel, and that there is little distortion after heating and quenching. In its natural condition the new steel shows higher physical properties than carbon steel of like carbon content, while after heat-treatment properties are obtained for which heretofore alloy grades have been employed.

Reduction in Steel Barrel Output

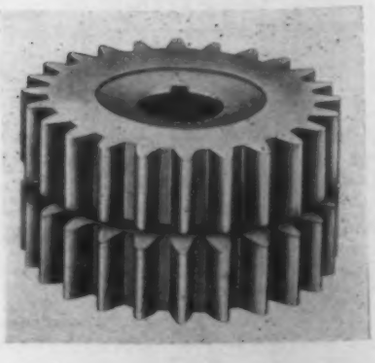
Production of steel barrels in July is reported by the Department of Commerce at 585,734, compared with 626,812 in the preceding month. The figures are from 31 establishments operating 36 plants. In July, 1925, production was 497,152 and in July, 1924, only 398,397. Shipments exceeded production by about 8000 barrels, resulting in drawing stocks down to 38,874 at the end of July. Unfilled orders included 1,293,601 barrels, of which 386,536 called for shipment within 30 days. There has been slight change in unfilled orders since April.

July business is reported by the Steel Barrel Manufacturers Association, Cleveland, at $1,379,401. Shipments by members of the association amounted to 401,009 barrels, representing 47.7 per cent of capacity. As usual, New Jersey received the largest quota, with 121,570. New York and Pennsylvania followed in order, with Texas fourth. Of the total only 25 barrels were shipped in export, all of these going to Canada.

The Hoskins Iron & Steel Co., Sydney, Australia, has plans under way for a 450-ton blast furnace at Port Kembla, a seaport town 56 miles south of Sydney. This furnace will follow American practice, being built from designs by the Freyn Engineering Co., Chicago. It is expected that construction will be started in a few months.



Above Is a Hollow-Bored Camshaft of Jalcase Steel. At left is a transmission gear carrier made of the same material. Timing sprockets of Jalcase steel appear at right



Blast Furnace Slag Analyses

Relations Between Temperature and Chemical Composition; Between Basic and Acid Slags —Two Principles Demonstrated

BY WALLACE G. IMHOFF

CONSIDERATION of the general appearance of blast furnace slag, with particular reference to the three heat-indicating elements—iron, manganese and sulphur—featured the first section of this article, published in our July 22 issue. What follows takes the reader from the general to the specific. The following complete slag analyses show how iron indicates slag temperature. Low iron, 0.30 to 0.50 per cent, indicates a hot slag. A typical example is given below:

Iron				Slag	
Silicon	Sulphur	Phos.	Man.		
2.96	0.020			SiO_2	32.52
2.80	0.023			Al_2O_3	16.52
2.78	0.021	0.616	0.63	CaO	44.50
2.39	0.026			MgO	3.73
2.45	0.023			Fe	0.38
2.58	0.022			S	2.17

This is an example of hot foundry iron. Note how high the alumina is in this slag. We will now examine another hot foundry iron slag.

Iron				Slag	
Silicon	Sulphur	Phos.	Man		
2.05	0.026			SiO_2	32.00
2.02	0.020			Al_2O_3	14.60
2.42	0.018	0.66	0.60	CaO	47.30
2.07	0.021			MgO	3.67
1.72	0.023			Fe	0.28
1.89	0.024			S	2.01

In this slag the iron is still lower. Both of these slags are very hot, for the low sulphur in the iron indicates a high hearth temperature. The silica is reduced to silicon and goes into the iron. This frees a large amount of lime, which combines with the sulphur present to form calcium sulphide. Note the high sulphur in the slag, another indication of a high hearth temperature. These two examples clearly illustrate that low iron and high sulphur indicate a high hearth temperature and a hot slag.

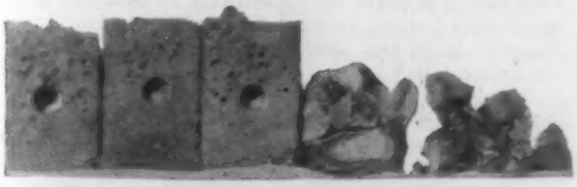


Fig. 5—A Hot, Acid Slag. At extreme right is a green glass slag, from the first flush. Next to the iron is a sample from the last flush before the cast. This shows by its condition that the furnace is becoming hotter

It is interesting to show the contrast when almost opposite conditions are present, that is, a low hearth temperature and a cold slag. The following examples will show such slags:

Iron		Slag	
Silicon	Sulphur		
1.41	0.036	SiO_2	35.38
1.26	0.037	Al_2O_3	12.11
1.13	0.039	CaO	41.80
1.01	0.040	MgO	7.62
0.78	0.049	Fe	1.14
0.55	0.079	S	1.44

Here the iron has jumped from 0.28 to 1.14 per cent and the sulphur in the slag has dropped from 2.01 to 1.44 per cent. The silica is not being reduced, because the hearth temperature is too low, and the lime, which should be combining with the sulphur, is now combined with the silica and the sulphur is allowed to go into the iron. A still more aggravated state is shown by the analyses at bottom of previous column.

Iron		Slag	
Silicon	Sulphur		
0.16	0.066	SiO_2	32.48
0.65	0.037	Al_2O_3	12.29
0.33	0.049	CaO	36.40
0.55	0.038	MgO	5.86
0.53	0.059	Fe	7.60
0.94	0.049	S	1.10

Here the hearth has become extremely cold, as seen by the fact that practically no silica is reduced. Also note that the sulphur is high in the iron and low in the slag. The examples cited are extremes. All stages fall between, but here it is sufficient to illustrate the principle for the practical interpretation of the analyses. Two important principles have been demonstrated, namely:

1. Low iron in the slag analyses indicates a hot hearth and a hot slag; high iron in the slag analyses indicates a cold hearth and a cold slag.
2. High sulphur in the slag analyses indicates a hot hearth and a hot slag; low sulphur in the slag indicates a cold hearth and a cold slag.

Fig. 4 (page 210) shows an extremely hot slag made at a high hearth temperature. This slag is low in iron and high in sulphur. The iron made from such slags is high-silicon, low-sulphur foundry iron.

Classification of Slags

Practical interpretation of chemical analyses depends upon a complete understanding of the classification of slags. The general classification is based upon two factors, first, the chemical composition; and second, the temperature. The chemical composition varies from a glassy, acid slag, to a dry, grainy, "limey" basic slag. No matter what the chemical composition is, whether acid or basic, such a slag may be hot or cold.

The general characteristics of acid slags when cold are a vitreous, dull to shiny, glassy luster; high density, brittleness, and hardness and high coefficient of expansion and contraction. When molten, acid slags are very fluid and watery, have a glistening, shiny surface, are thin, and draw to a thread when run from the slag sample dipper.

The temperature range from cold to hot affects acid slags by changing their color. A hot, glassy slag is green; a cold, glassy slag is black; when manganese is present, as the slag becomes colder it turns brown and then black.

Acid vs. Basic Slags

Fig. 5 illustrates clearly a hot, acid slag. The samples at extreme right are a green glass, from the first flush. The pieces next to the iron, taken from the flush just before casting, show that the hearth is much hotter. The tops of the iron samples show that a hot foundry iron has been made from this type of slag.

The general characteristics of basic slags when cold are their dry, dull luster, their grainy appearance, their increase of weight as compared to acid slags, their strength, and their low coefficient of expansion. When molten, basic slags are fluid when hot, but become extremely heavy, viscous and sluggish when cold. When poured from the slag sample dipper they cut off short and do not draw a thread.

The temperature range from cold to hot affects a basic slag in a striking manner. A cold, basic slag is extremely black and dry. It has a dull luster and is usually accompanied by gas cavities caused by free sulphur gas escaping from the slag as it cools. The second sample from the right in Fig. 2 (page 209) shows a typical cold, basic slag.

No definite marked divisions can be set between acid and basic slags. The two extremes are easily identified and present a strong contrast. It is only when the two

begin to merge together that more skill is required to interpret the practical conditions. Close study, however, reveals evidences which help to place the slag in its proper location.

Temperature vs. Chemical Composition

Two factors are constantly influencing the slag characteristics and the effects of one should not be confused with the other. These factors are temperature and chemical composition. It is therefore necessary to discuss the changes which take place in passing from acid to basic slags under three different ranges of temperature—hot, medium hot and cold.

Hot, glassy slags are green glasses. In passing from acid to basic in characteristics, as the bases increase, white (lime) or blue (alumina) centers begin to appear. With increased basicity this white or blue center will spread over the entire area of fracture. White slags show the predominating influence of lime, blue slags the predominating influence of alumina. Extremely hot slags are usually pure white. The transition period is marked also by a change in the vitreous, stony characteristics of the acid slags, to dry, grainy characteristics of basic slags. These two characteristics may be seen by comparing the slag samples of Fig. 5 with those shown in Fig. 4.

Medium hot slags are a dull, sluggish green when no manganese is present, and brown if high-manganese ores are in the burden. The decline of temperature is shown by the decrease of gloss which the hot slags exhibit. The increase of bases in this type of slag is shown by the appearance of white (lime) and blue (alumina). The most prominent characteristics to be noted in passing from acid to basic type is the gradual disappearance of the vitreous fracture to the dull basic fracture and the change from a glassy structure to a stony and granular structure.

Cold slags are of two general types, the coal-black glistening glassy type on the acid side, and the dull, coal-black, heavy basic type. In cases of extreme coldness, with acid slags fine black glistening shot will be blown from the slag notch; with extremely cold basic slags, the slag cannot be withdrawn. Cold basic slag is extremely sluggish, crusty and heavy. It freezes as soon as it comes out of the slag notch and has to be pulled away with hooks or rabbles. In many instances both the monkey and the intermediate cooler have to be taken out and, in extreme cases, even the monkey cooler.

(To be concluded)

Centrifugal Casting and Its Problems*

Comparisons with Sand Casting—Alloys Suited for Centrifugal Product—Phenomena in the Mold of Each Process

THE development of the centrifugal casting process and its application to the high melting point alloys have given rise to a series of new problems in metallurgy and the testing of materials. The investigations that have been made up to the present time on foundry practice apply in the largest part to the sand casting process, so that the results obtained from them can be applied only in the most limited manner to the centrifugal casting process. These two processes are essentially very different. These characteristic differences will be better understood by examining the technical details of the two processes.

Sand and Centrifugal Processes Compared

In the sand casting process a large number of molds are employed and a definite weight of metal is melted and poured into these molds and allowed to congeal therein. In the centrifugal casting process a large number of castings are made in a single steel mold, the process being continuous. Hence a large quantity of metal is maintained in the molten state and sufficient of the molten mass is run off each time to make the casting while new metal is added to the melting pot from time to time. The molten metal is pressed into the mold by a suitable device and congelation takes place immediately, whereat the still hot casting is ejected and the mold is ready for the next casting.

The differences between the two processes are easy to recognize and need not be gone into in great detail. In the sand casting process the duration of melting and the mass of metal melted each time are magnitudes which are accurately known and, therefore, it is comparatively easy to determine beforehand the course of the reactions that take place in the melting process. It is also possible to counteract these reactions, when they are undesirable, by adding the proper substances to the metal bath. Thus directly before the metal is poured it is possible to add reagents which rapidly react to remove impurities.

On the other hand, in the centrifugal casting process the chemical condition of the metal bath is constantly altered by agencies which act continuously on the molten metal, such as the air, the walls of the crucibles or container in the pressure chamber. In this case the conditions are entirely different, for it has been found that such impurities, as for example the gases that are absorbed by the molten metal, when once they are contained in it, have no opportunity of escaping after the casting process, because the metal solidifies almost immediately in the centrifugal form. Thus gases in the molten metal are present as air pockets in the solid metal. Hence it is easy to see that the treatment and handling of the metal are matters of considerably more difficulty in the centrifugal casting process than in the sand casting process.

Alloys Better for Centrifugal Castings

The solution of the problem lies in the realm of alloying. Inasmuch as, when once an impurity or an imperfection in the molten metal bath occurs in the centrifugal casting process, it remains, for it can be removed only to a very limited degree, it follows that alloys must be selected for use in the centrifugal casting process which are peculiarly adapted to it and which are resistant to the various injurious chemical agencies that are present during the process. Thus these molten alloys must possess the property of not absorbing gases, of not holding fast particles of slag and the like in their interior and of reacting but very little with the air that is found in the centrifugal mold.

These are rather difficult conditions but there have been found a number of alloys which can be cast in a practical manner by this process, and the castings that are obtained are satisfactory from the physical standpoint.

Phenomena in the Mold

The phenomena which take place in the mold after casting form an even greater contrast between the sand casting process and the centrifugal casting process. The sand form is made in such a manner that it offers no resistance to speak of to the contraction that takes place when the molten metal congeals in it. The heat conductivity of the substance from which the sand form is made is very slight. The molds are also prepared in the proper manner to allow gradual cooling to take place.

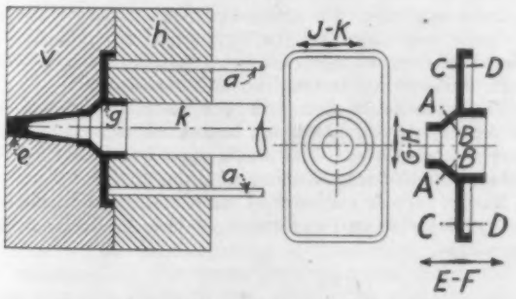
Hence, due to the properties of the sand mold as explained above, in most cases it is possible to allow the metal, after it has been poured into the mold, to remain there until it has entirely cooled off. The cool-

*From an article by L. Frommer in *Zeitschrift für Metallkunde*, 1925, page 245. Translated abstract made by Ismar Ginsberg, New York.

ing takes place slowly. The alloy metals that are cast in this manner are thus given a chance to reach a condition of equilibrium and the strains that take place during the contraction of the casting are not induced by the resistance of the mold to the shrinkage, but only to the unequal rate of cooling that may occur in certain parts of the cast metal. Only in the case of very large and very irregular castings is it found that the strains induced in the solidification of the metal are so large that there is danger of the casting being disrupted when subjected to pressure.

When considering the shrinkage of the metal during cooling, the important matter is not the contraction that may take place while the metal is cooling but the total shrinkage that occurs from the time the metal is poured at the high temperature to the time that it attains room temperature. This maximum shrinkage in the case of the sand casting process amounts to only a very small fraction of the dimensions of the finished casting.

On the other hand, and in direct contrast to these conditions, the progress of the solidification of the molten metal and the cooling process are of considerable importance in the centrifugal casting process.



Simple Centrifugal Mold and Casting

The illustration shows a simple centrifugal casting mold as well as the finished casting itself. Thus in this, *v* is the top half of the mold, *h* the bottom half, *e* is the opening through which the metal enters, and *g* is the casting. The core is seen at *k*. The studs *a* are for removing the casting after it has solidified.

As soon as the metal has filled the mold, it quickly solidifies and cools off very rapidly. The changes in condition that take place during the congealing of the metal are generally suppressed, so that the alloy metal which is cast by this process and in which these changes occur is not in a state of equilibrium after cooling is completed. It is of still greater importance that the steel mold offers a certain amount of resistance to the contraction of the molten metal during the cooling process. As long as the casting is in the mold, it can contract only in that direction in which the steel mold is not fixed. Hence the casting, which is shown, can shrink only in the direction E-F, while every tendency to contract in the directions G-H and J-K is prevented, and only the thickness of the walls of the casting can be reduced. Hence it follows that stresses are induced in the casting in that direction. It is only when the metal has cooled down sufficiently so that it can be removed from the mold that contraction can take place unhindered.

Conditions for Avoiding Cracks

The suitability of a metal for casting by the centrifugal process depends on whether or not it can remain in the mold until it attains such temperatures that it can be expelled therefrom without being subjected to the formation of cracks due to contraction. In addition to this first condition there is also a second of equal importance. A casting, as shown in the illustration, contracts while it is cooling, and a certain pressure is exerted against the core *k* and the posterior portion of the mold *h*. The result is that, when the casting is pulled out of the mold, stresses are induced in it along the axis C-D, and when the core is pulled out along the axis A-B, as may be easily seen. These induced strains are apparently greater, the more the casting has cooled off up to the time that it is ejected from the mold.

On the other hand the mechanical strength of the casting increases as the temperature is reduced. Thus if the casting is to be brought out of the mold in good condition, it is essential that the alloy attain such properties during the cooling period within the mold that the tension due to shrinkage to which it is subjected is small while its mechanical strength is large. Similarly, the hardness of the casting should have reached such a point by the time it is ready for removal that the rods which are used to aid in its removal from the mold do not penetrate into the metal.

In order to establish the suitability of the metal for casting by the centrifugal process, the first test that must be made on it is to determine whether it will satisfy the two afore-mentioned conditions. It is a fact that metallurgical investigations have not afforded much information on this particular subject, and such information as is available is limited to the determination of the specific mechanical strength of the casting at the temperatures at which it is employed. Of far greater importance is the variation of the contraction, the strength and the elongation of the casting as the cooling process progresses, and the relationship that exists between these characteristics of the casting and the temperature. This is the main subject matter of what follows.

In the original article a discussion is given of the magnitude and distribution of casting strains and of the importance of these factors in determining the tendency toward the formation of fissures and cracks in castings made by the centrifugal method. It is shown that this tendency of a casting depends on the behavior of the metal from the time that it flows into the mold to the time that it is ejected from the mold. Or, speaking in terms of temperature, from the temperature at which it enters the mold to the temperature at which it is removed from it.

Testing the Centrifugal Casting

There are two tasks that must be performed by the methods that are employed in the testing of centrifugal castings. In the first place it is evident, from what has preceded, that the raw materials must first be tested to determine whether or not they are suitable for being cast by the centrifugal process, and the degree of this suitability must be determined quantitatively. Then in the second place it is necessary to determine the mechanical properties of the alloys which are found to be usable in this manner, and this must be accomplished in such a manner that the influences which affect the mechanical properties of the casting during the processes of casting, quenching and cooling are taken into consideration.

It is only after these methods have been developed that it will be possible to establish the value of the centrifugal casting process for this purpose and also to select the materials that are to be handled in this manner in such a way that the finished products will be perfectly suited to the purposes for which they are intended.

In testing the suitability of alloys and metals for the centrifugal casting process it is necessary to determine the behavior of the metals in the warm condition. The course of the shrinkage curve as the metal changes in temperature must be established. When this is done it will be possible to obtain an accurate idea of the manner in which the alloy will behave while it is being centrifugally cast. Then again it is necessary to determine the flexibility of the metal and the tension under conditions of shock.

An easy method of establishing the manner in which the metal behaves while it is cooling off in the casting process is to cast a test piece in such form that both ends of the test rod can be maintained rigid during the testing process. In this way it may be determined whether or not cracks will form in the casting while it is cooling off.

It is not possible to give all the details of this portion of the investigation in this abstract and the reader is referred to the original for them.

The second part of the testing problem is to deter-

mine the properties of the finished casting in the cold. The testing of a casting made by the centrifugal process is somewhat different from that made by the sand process. There are certain changes which the metal undergoes in the centrifugal mold and certain influences to which it is subjected that render it necessary to make certain special tests on it.

The porosity of the casting must be taken into consideration. The variation in the density of the metal in the centrifugal casting on the inside as compared with the surface is important. The metal on the surface is more dense than in the interior of the casting. Then again the influence of the irregularity of the size of the core must be considered. The quick cooling at the walls of the form has the result that the limiting zones of the casting contain very fine grains of metal, while the granulation becomes coarser as the interior of the casting is approached. Finally, there must be considered the fact that the metal is cast in the mold under pressure and this is bound to have some effect on the mechanical properties of the casting.

It is therefore understandable that, when the metal near the surface of the casting is tested for strength, ductility and the like, different values will be obtained from those when metal in the interior of the casting is tested. These facts must be carefully considered in determining the strength of a casting made in this manner and in establishing the suitability of the centrifugally cast object for one purpose or another. At best the problem is one of great complexity and, while there are many advantages to be obtained from the centrifugal casting process, it is well to consider all phases of the problem before deciding that the centrifugal process is the one to employ.

NEW DESIGN RAIL ANCHOR

Two-Piece Construction and Simple Installation —Multiple Wedge Action

Outstanding features of the "Bethco" rail anchor, recently put upon the market by the Bethlehem Steel Co., are adjustment to fit rails in any condition and a design which prevents the two parts of the anchor from being separated.

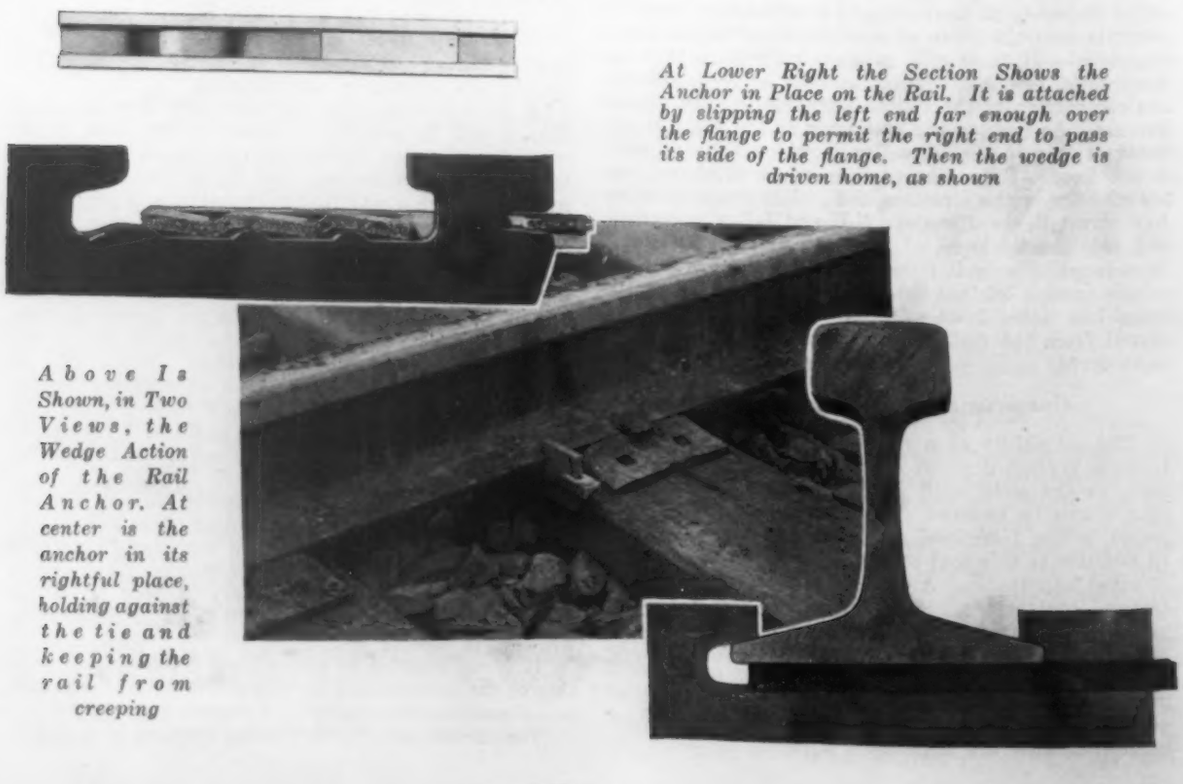
While the anchor is of two-piece construction, it is shipped and installed as one piece. The two pieces can be separated only with considerable difficulty and by an unusual manipulation of the parts. This two-piece construction allows adjustability to take care of more than one rail section, over- or under-size rails, and the tendency of rails to wear thin where they rest on the tie plates, or because of corrosion.

The anchor consists of a heavy flat yoke, which hooks over the base of the rail on both ends, and a heavy key which is driven horizontally between the base of the rail and the yoke. This key provides the wedging action to hold the rail in place and can be removed only in a similar manner to the way it is installed. Since there is no force acting upon the key in this direction, it should not become loosened while in service. The wedging action of the key is crosswise of the rail, along practically the entire base of the rail. This fact, and the channel shape of the key, serve to prevent it from being forced sidewise off the yoke.

The working forces are exerted against the anchor at right angles to the yoke and key. The surface of the yoke bears against the surface of the tie, distributing the pressure over a large area, thus calculated to avoid damage or destruction to the tie.

The yoke is hooked over the base of the rail and the key is driven home by means of a hammer, rail chisel or other tool. The Bethlehem Steel Co. is being assisted in the introduction of this device by George L. Moore, former engineer of maintenance of the Lehigh Valley Railroad and chairman of the A. R. E. A. rail committee.

To 30,780 employees of its various plants and offices who have been in the employ of the company for five years or more the General Electric Co. paid $1,396,-002.57 in supplementary compensation in August. This sum represents 5 per cent of the earnings of these employees for the six months ended June 30. Payment was made in General Electric Employees' Securities Corporation bonds or cash as the employees desired. The bonds bear 8 per cent interest as long as the original holder remains in the employ of the General Electric Co.



At Lower Right the Section Shows the Anchor in Place on the Rail. It is attached by slipping the left end far enough over the flange to permit the right end to pass its side of the flange. Then the wedge is driven home, as shown

Above Is Shown, in Two Views, the Wedge Action of the Rail Anchor. At center is the anchor in its rightful place, holding against the tie and keeping the rail from creeping

New Rapid Production Lathe

Tapered Roller Bearings in Headstock, Automatic Lubrication Throughout and Apron of New Design Are Features

A NEW model 16-in. geared-head rapid production lathe with features intended to increase productive capacity, operating convenience and general serviceability has been added to the line of the R. K. Le Blond Machine Tool Co., Cincinnati. The machine is essentially a lathe for the quantity production of plain turning and facing work, and the design is simple but massive. Features include the use of tapered roller bearings in the headstock, automatic lubrication throughout and power rapid traverse to the carriage and cross slide.

Mounting of the spindle, driving shaft and intermediate shafts of the headstock in Timken tapered roller bearings is intended to reduce power consumption and minimize wear. The headstock is of selective-speed type providing six changes of spindle speed, ranging from 47 to 450 r.p.m., through sliding gears and the manipulation of two change levers. All gears are of alloy steel, heat-treated and the sliding gears and their mates are hardened. The gears slide on multiple-splined shafts. The drive is through a multiple-disk clutch in the driving pulley, and gear combinations, to the spindle. The driving clutch incorporates a friction brake which is engaged automatically upon release of the friction and brings the spindle to an instant stop. Control of the friction is by a handle on the front of the headstock.

Automatic flooded lubrication is provided for the headstock. The head casting is filled with oil to a level indicated on the front, this oil being distributed by the rotating gears to the various oil wells, and to a conveyor tube. All the bearings and gears, as well as the multiple-disk clutch, are adequately lubricated in this manner, and the only attention required is maintaining the oil at the level indicated.

The machine is furnished with a geared feed mechanism. The drive is taken from one of the intermediate shafts in the headstock, through a quadrant and system of change gears to the feed shaft. A wide range of feeds is provided, the coarse changes being made through change gears on the quadrant and fine changes by shifting a lever on the headstock. Power rapid traverse is incorporated in the feed mechanism; the drive to the traverse shaft is by belt from the drive pulley. The traverse is engaged by a lever at the side of the apron, which shifts a double positive-jaw clutch, the traverse being effective on both longitudinal travel of the carriage and cross travel of the slide in either direction. This lever also engages the length and cross feeds. The feed and traverse mechanism is oiled automatically by flooded lubrication, an oil level and intake being provided at the front. Adjustable automatic traverse safety stops are provided. The feed and traverse cannot be in engagement at the same time.

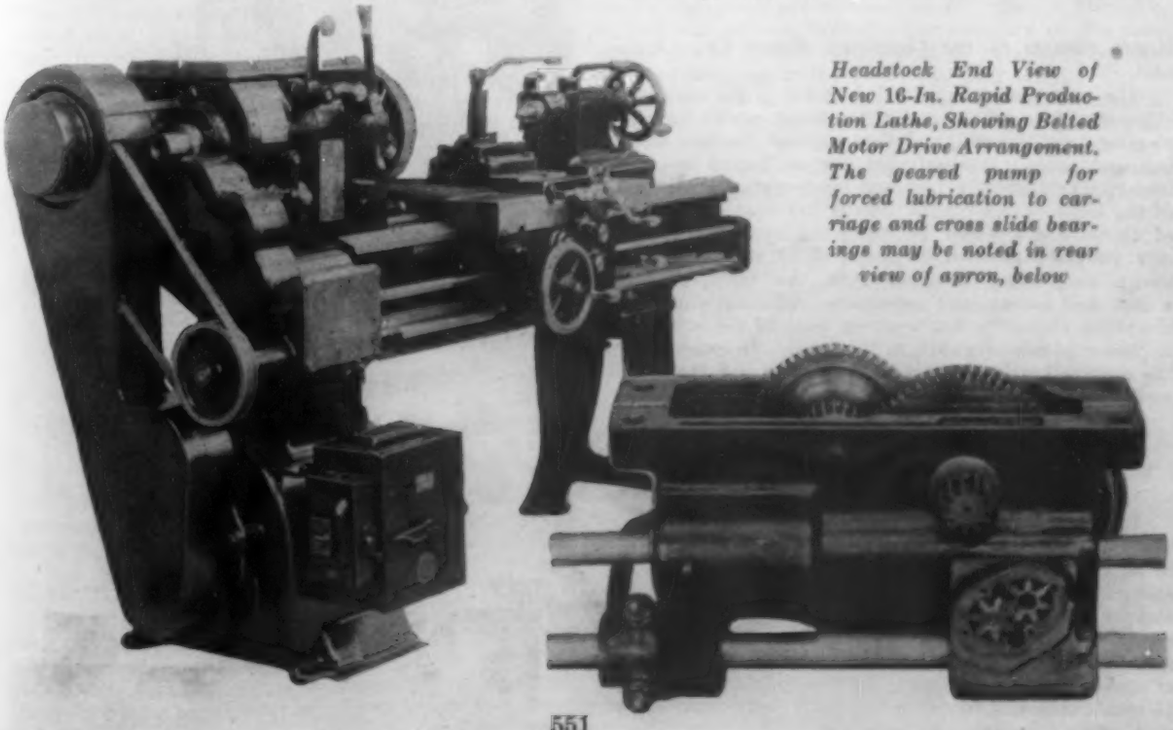
Apron of Flooded Lubrication Type

An outstanding feature is the apron, which is of flooded lubrication type. It is a one-piece box casting partly filled with oil, and the apron gears run in a bath of oil. In addition, a submerged geared pump is provided in the apron for forcing lubrication to the carriage and cross slide bearings. The pump operates while the feed is engaged and during either direction of travel of the carriage. It also provides forced lubrication to the bearings in the apron.

There are only six gears in the apron, these gears being of steel, heat-treated and hardened. The apron is of double-wall type and all shafts have bearings front and rear. Feeds are controlled by a lever on the side of the apron, this lever controlling both feed and traverse in either direction. A knob for shifting a sliding gear provides the means for conveniently changing from longitudinal to cross feed. The apron hand wheel is equipped with a positive clutch, which may be disengaged to prevent revolving of the hand wheel while the feed or power traverse is engaged.

Carriage and Cross Slide Bearing Surfaces Oiled Automatically

The bed of the machine is of the company's heavy-duty type featured by the "compensating-vee" construction on the front shear. The carriage has long bearing on the bed and has large bed and cross slide



Headstock End View of New 16-In. Rapid Production Lathe, Showing Belted Motor Drive Arrangement. The geared pump for forced lubrication to carriage and cross slide bearings may be noted in rear view of apron, below

bearing surfaces, which are oiled automatically by means of the pump submerged in the apron. This automatic lubrication of the carriage and cross slide bearing surfaces is stressed as eliminating hand oiling, and, in assuring an adequate supply of lubrication, it eliminates the wear which otherwise would destroy the alinement and accuracy of the machine.

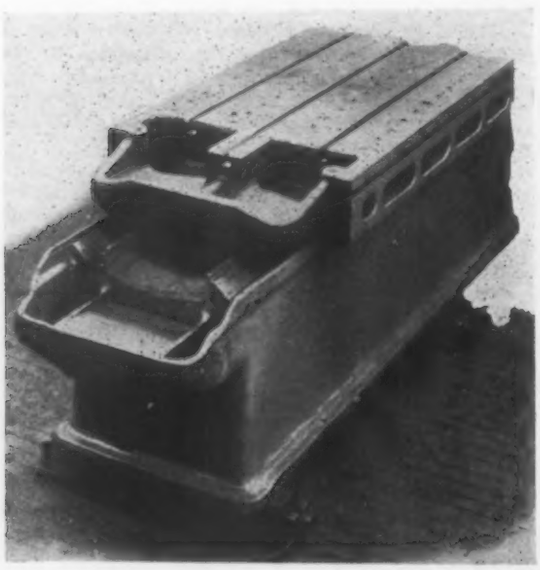
A massive screw-operated tailstock of the setover type is furnished, and also a massive plain block rest and single screw tool post. The usual attachments and accessories are offered.

Two motor drive arrangements are available, a constant-speed geared motor drive and a belted motor drive for either a.c. or d.c. constant speed motors. A 5-hp. 1200 r.p.m. motor with plain control is recommended. In the geared motor drive arrangement, the motor is mounted on the headstock, and in the belted-motor drive, the motor is housed in the base of the front cabinet leg. In the latter arrangement the pull is vertical in line with the center of the spindle. An idler pulley is provided for increasing contact area of belt and for adjustment of belt tension.

The swing over the shears is 17¼ in., and over the plain block rest slide, 10¼ in. The capacity between centers, 6-ft. bed, is 2 ft. 9 in. The domestic shipping weight of the machine with 6-ft. bed is 1900 lb.

Planer Provided With Chip Pocket at End of Table

An inner guide box table with a pocket cast integral with the end, as shown in the accompanying illustration, is a recently announced improved feature of the



The Chip Pocket Is Integral With the Table, and in Catching Chips Prevents Damage to Bed and Table

Hypro planers of the Cincinnati Planer Co., Cincinnati.

The new pocket is intended to catch and carry the chips that drop off the end of the table, especially when planing near the end, and thus prevent damage to the bed and table. It eliminates the cardboard or sheet iron cover frequently fastened by operators to the end of the table, which covers usually are soon bumped out of shape and present an unsightly appearance. The new pocket is heavy, is designed to withstand hard usage and, being integral with the table, presents a neat and harmonious appearance. It also eliminates the rattle caused by the working loose of the bolts used to fasten a pan or guard to the table. In cases where the work is high and must be blocked on end, the pocket walls may be used as stops.

Mechanical Stokers in July

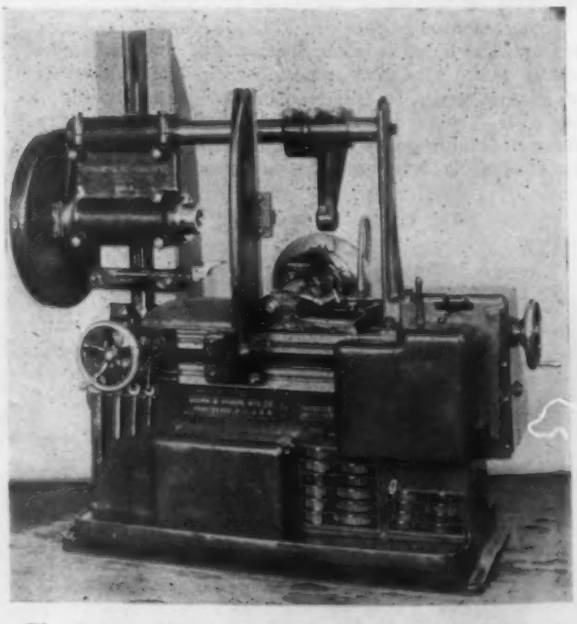
Department of Commerce figures for sales of mechanical stokers in July are 125 units, with an aggregate of 50,494 hp. This is a sharp reduction from the 175 stokers of 68,408 hp. in June, and is lower than the 147 stokers of 58,719 hp. in July, 1925. Only 12 establishments are reporting, one establishment of the 13 previously reporting having discontinued the manufacture of stokers early this year. Two years ago there were 15 establishments, two of which later were consolidated with other companies.

Improves Automatic Gear Cutting Machine

Improvements intended to increase productivity by facilitating the setting up of heavy work, and at the same time to assure a high degree of accuracy, have been incorporated recently in the No. 4 automatic gear cutting machine of the Brown & Sharpe Mfg. Co., Providence. Outstanding of these improvements is the method of supporting the gear blanks.

The work-spindle slide of the redesigned machine is heavier than previously and is equipped with a solid steel overarm which clears gears to 19⅞ in. in diameter. The arm carries a work-support head, equipped with an adjustable center, which supports the outer end of the work arbor, and a relocating device for relocating the head after having once been centered. The overarm is further supported at its outer end by a heavy vertical brace, which is fastened securely to the bed of the machine and to the feed case. An upright support, sliding on ways on the front of the bed, takes all work up to the full capacity of the machine.

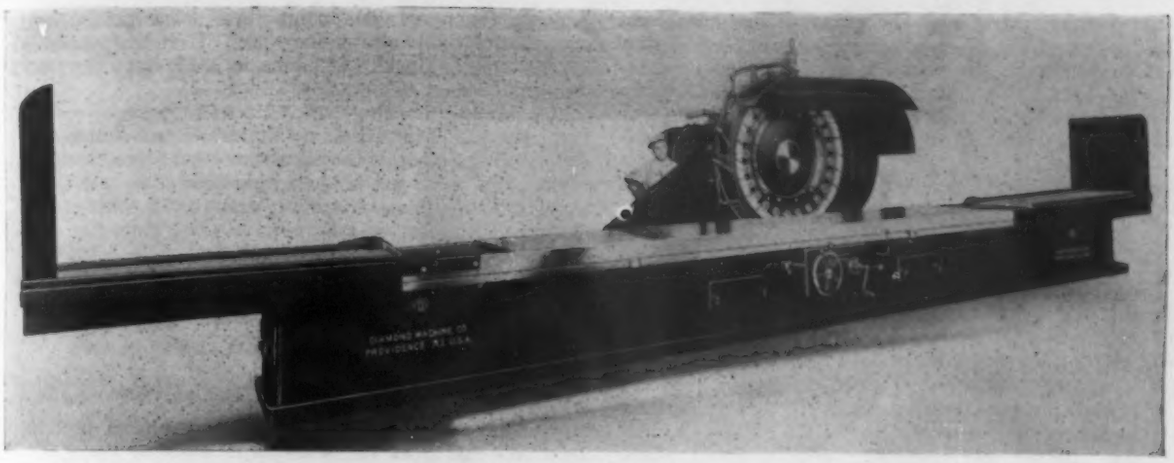
To conform with this new design, the work-spindle slide has been made heavier, having a wider and heavier



The Outstanding Improvement Is in the Method of Supporting the Gear Blanks

strap and gib, and the upright ways of the bed strengthened, the metal of the side walls supporting these ways being thickened to provide additional support.

The feed screw which operates the cutter slide has been increased in diameter to give greater durability. The index worm shaft has also been increased in size and provided with a heavier index worm bracket. To provide a means of compensation for wear, the outer bearing of the cutter spindle is equipped with a tapered bronze bushing.



Face Grinder Designed for Surfacing Manganese Steel Frogs and Crossings. A 54-in. wheel is used

Face Grinder Adapted for Surfacing Rail Frogs and Crossings

The grinding of rail frogs in 30 min. is claimed for the face grinder here illustrated, which is regarded as one of the largest and heaviest machines of its class. This machine was built recently by the Diamond Machine Co., Providence, and although designed primarily for the surfacing of manganese steel frogs and crossings, it is adapted for the grinding of other pieces requiring flat surfaces.

The machine accommodates work up to 198 in. in length and 42 in. in height. The bed is 336 in. long and is provided with a V-way at the front, 4 in. wide, and a flat way, 5 in. wide, at the rear. The table is 258 in. long and 36 in. wide, and the platen, 200 in. long and 36 in. wide. The spindle, which is 9 in. in diameter in the front bearing and 7 in. in diameter at the rear bearing, is mounted in split phosphor-bronze bushings 22 in., and 14½ in. long, respectively. Ball thrust bearings and threaded collars take up end-play.

The initial drive is by a 75-hp., 735-r.p.m. motor. The spindle is driven by sprocket and silent chain, and the drive to the table is by 2½-in. cross belts. The speed of the wheel is 215 r.p.m. and the maximum table speed 30 ft. per min. Cross feed is controlled by hand from the front and rear of the machine and the automatic cross feed, which ranges from 0.001 in. to 1/32 in., is controlled from the rear. One revolution of the front crank and rear handwheel moves the wheel head ⅛ and 1/16 in., respectively. The total amount of cross feed with new wheel is 4 in. Table traverse by hand or power is controlled from the front and rear.

Coolant is pumped to the work and wheel from a 100-gal. tank, a settling tank of 40-gal. capacity being also provided. A special sectional wheel chuck is furnished. This chuck holds 24 abrasive blocks, each of which is 7½ in. deep and 2 or 3 in. thick. The segments are adjustable for wheel wear and more than 5 in. of depth can be used before renewal. A permanent wheel truing device is provided.

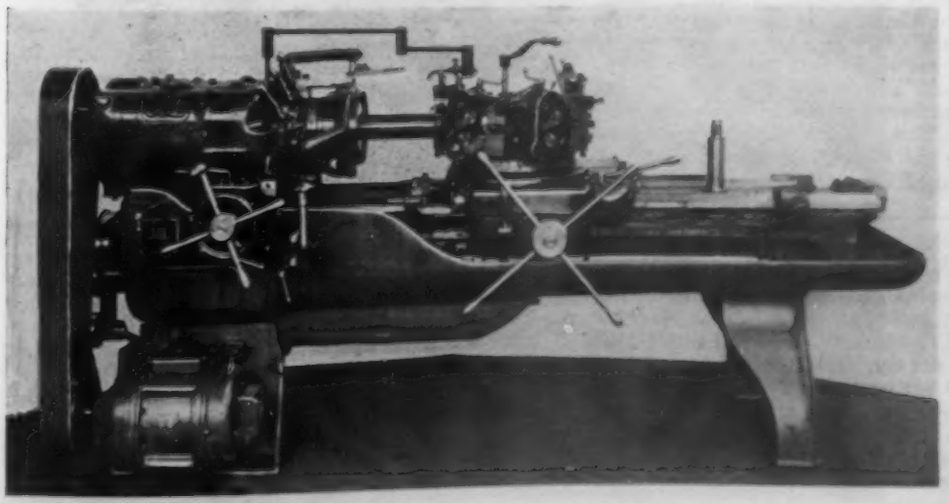
The floor space required for the machine is 10 ft. 7 in. by 55 ft. 9 in. The net weight, with motor, is 60,000 lb.

Hartness Flat Turret Lathe of Increased Capacity

A Hartness flat turret lathe of increased capacity, and made both as a bar machine and as a chucking lathe, is being placed on the market by the Jones & Lamson Machine Co., Springfield, Vt. The capacity of the bar machine is for work 4 in. in diameter and 34 in. in length. The chucking lathe, which is equipped with a 17-in. chuck, has a swing of 21 in. on centers and a swing of 17½ in. over the ways.

The headstock of the 4 x 34-in. machine has been redesigned, adding not only to the spindle capacity, but also to the rigidity and pulling power of the lathe. The spindle is 5¼ in. in diameter with a hole 4 3/16 in. in diameter, and is mounted in split bronze bearings of generous size. Shafts and gears are of alloy steel, heat-treated, and the shafts are mounted in ball bearings. Change of speeds, forward and reverse, is effected through multiple disk clutches. These clutches, shafts and gears are stressed as of sufficient strength to pull any work within the size capacity of the machine, and to assure positiveness of rotation equal to the cuts required in the 17-in. chucking lathe.

The bar outfit is similar to that of the company's other flat turret lathes. The 17-in. chucking lathe is equipped with a square turret. Particular claims are made for simple multiple tooling on large diameter chuck work, production of which is facilitated by the



The 4x34-In. Machine Is Made Both as a Bar Machine and Chucking Lathe. The headstock has been redesigned, adding to spindle capacity and also rigidity and pulling power of the lathe

large square turret and the cross sliding headstock. The tooling of the 17-in. chucking lathe is also similar to the tooling of the company's other chucking machines. This tooling, it is claimed, has an advantage in that inexpensive standard tooling is sufficient for the majority of chucking work, special tools being seldom required.

Crane Type Electric Truck Arranged for Cupola Charging

A recent addition to equipment available for charging cupolas is the crane-type electric truck here shown, which operates in connection with Chisholm & Moore Mfg. Co.'s 1-ton charging buckets and uses the Morgan patented bucket yoke.

The machine has been placed on the market recently by the Baker-Raulang Co., Cleveland. The truck itself consists for the most part of standard Baker parts, the axles, controller, automatic switch, hoist and other units being interchangeable with all other models of the company's trucks and tractors. The motors receive power from a 48-volt storage battery contained in the steel box near the driver's end of the truck.

The Morgan charging bucket is circular in shape and has a conical drop bottom. In operation the bucket is loaded and picked up by the load and bottom operating hook, which is attached to the conical drop bottom. When it is raised the four dogs on the yoke engage with the angle iron ring around the top of the bucket. To discharge the bucket it is only necessary to reverse the power on the hoist, which lowers the drop bottom while the shell of the bucket is held up by the yoke. The conical shape of the drop bottom is stressed as spreading the charge evenly around the cupola.

To place the bucket back on the floor the drop bottom is raised until it engages the shell and raises the ring clear of the dogs. The dogs are then held clear of the ring by means of the chain leading back to the operator's position while the bucket is being lowered. The upward travel of the hoist is protected with an automatic safety switch which cuts off the power when the bucket has been raised so that the ring is 1 in. above the dogs.

The boom is strengthened with a steel plate on the side toward the fire. This protects the cable and other operating parts from the heat. The cable is a special steel center rope selected for the purpose.

Electric Crane Truck Arranged for Charging Cupolas. A Chisholm & Moore charging bucket with conical drop bottom and Morgan bucket yoke are employed

Sharp Drop in Fabricated Steel Plate

Bookings of fabricated steel plate in July were the lowest since January, according to reports of 36 firms to the Department of Commerce. The total was 30,448 net tons, a loss of 23 per cent from the 39,551 tons (revised) for June, but 4 per cent ahead of the 29,272 tons of July, 1925.

In seven months a total of 242,169 tons has been recorded, against 184,159 tons last year and 152,514 tons in 1924. Only in the tank car group has this year's 7-month tonnage failed to maintain a substantial lead over that of the two previous years. Here the total was 14,266 tons, against 21,263 tons in 1925, but only 2027 tons in 1924.

Of the July bookings, 10,702 tons represent oil storage tanks; 2097 tons, refinery materials and equipment; 892 tons, tank cars (the smallest total since October, 1924); 1716 tons, gas holders (smallest since last October); 989 tons, blast furnaces; and 14,052 tons, stacks and miscellaneous.

W. A. Eager to Head Merged Twist Drill Companies

The merger of the Whitman & Barnes Mfg. Co., Akron, Ohio, and the Detroit Twist Drill Co., Detroit, makers of twist drills, which was announced in THE IRON AGE last week following ratification by the stockholders of both companies, will be completed by the incorporation of a new company known as the Whitman Barnes-Detroit Corporation which will have 100,000 shares of no par value. The company will be incorporated with a Michigan charter and as soon as incorporation details are carried out a meeting of the directors will be held to complete the organization and elect the officers.

W. A. Eager, president of the Whitman & Barnes Mfg. Co., is slated for the presidency of the new company. Muir Snow, president of the Detroit company, will be vice-president, and Karl Kendig, secretary and treasurer of the Akron company, will occupy the same official position in the new organization.

The main office of the company will be located in Detroit. For the present, at least, both the Detroit and Akron plants will be operated.

Increase in Agricultural Implement Exports in July

WASHINGTON, Aug. 21.—Exports of agricultural implements and machinery from the United States during July amounted to $7,326,232, an increase of $100,000 over the shipments in July, 1925, according to the agricultural implements division, Department of Commerce. It was more than $1,000,000 greater than the exports in June of this year, but less than in May, when foreign shipments exceeded $8,000,000.

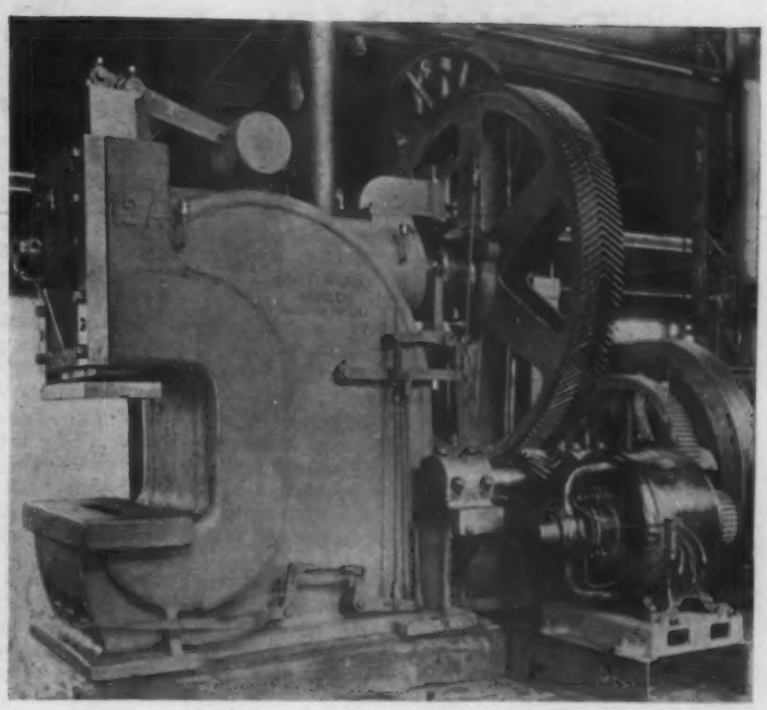
Examination for an experimental steel plant operator is announced by the United States Civil Service Commission, applications to be on file not later than Sept. 28. The position vacant, which pays $3,000 per year, is at Minneapolis. Applicants must have had at least six years' experience in a steel plant, including operation of steel-making furnaces. Full information and blanks may be obtained from the Civil Service Commission, Washington, or at the post office or custom house in any city.

Heavy-Duty Splice Bar and Tie Plate Punch

The incorporation of a herringbone main gear and pinion is an outstanding feature of the heavy-duty splice bar and tie plate punching machine here shown, which has been brought out by the Beatty Machine & Mfg. Co., Hammond, Ind.

The machine has a capacity of 750 tons ram pressure. The main frame, of semi-steel, is of box type and the face plate is of cast steel. The sliding head or ram is of cast steel, with bearing guides bronze lined. The portion of the main shaft upon which the clutch is mounted is square, and engages with a square hole in the clutch, providing a full four-sided bearing and eliminating the use of the usual keys. The machine is motor driven, as shown. The main gear is 95 in. in diameter and has a 12-in. face.

The table of the machine measures 21 in. front to back, and 53 in. right to left. The face of the slide is 15 in. front to back and 37 in. right to left. The stroke of the slide is 2½ in. The depth of throat is 15½ in. from center of ram to face of housing. Shipping weight is 72,000 lb.



The Main or Clutch Gear and Pinion Are of Herringbone Type. The ram pressure is 750 tons, and the frame is of massive construction

Develops One-Ton Fordson Crane

The crane here illustrated, brought out by Whitehead & Kales Co., Detroit, is designed for installation upon the standard model Fordson tractor to fill the industrial need for a light, fast, portable vehicle, capable of handling loads up to 1 ton and flexible enough to be maneuvered in a very small area.

The rigidly constructed main frame allows free front axle movement by attachment to a frame supporting the boom. One lever raises, lowers or holds the load in the desired position, and a friction cone clutch is designed to permit gradual application of power reaching a hoisting speed of 38 ft. per min. at 1000 r.p.m. The frame is made up of 7-in. channels, attached to the rear axle by U-bolts. Two lengths of boom, 8 ft. 5 in. and 12 ft. respectively are available.

Slight Falling Off in Automobile Production in July

WASHINGTON, Aug. 24.—Production of motor vehicles in the United States during July totaled 355,446, of which 315,861 were passenger cars and 39,585 were trucks, according to the Department of Commerce. The output in the United States in June included 339,542 passenger cars and 44,110 trucks. Canadian figures for July are not available as yet.

Output for the first seven months of 1926 was the highest ever recorded—2,386,251 passenger cars and 294,066 trucks. Both figures are higher than the entire 12-month production of 1922, which was the greatest output ever achieved up to that time in passenger cars and the third greatest in trucks. The figures compare with 2,215,115 cars and 269,139 trucks in the first seven months of 1925.

The Crane Is for Industrial Work, Handling Loads Up to 1 Ton. It is arranged for maneuvering in small areas. The hoisting speed is 38 ft. per min.

British Mills Less Optimistic

Operations Improve Slightly But Early Strike Settlement Seems Remote—Continental Markets Strengthened by Firmer Exchange

(*By Cable*)

LONDON, ENGLAND, Aug. 23.

THE small Cleveland pig iron output from four furnaces still in blast is readily absorbed and prices are unchanged. A considerable quantity of Continental pig iron is now being consumed. Only eight furnaces were in blast in Britain Aug. 1.

The outlook for finished steel is more hopeful with a growing tendency of coal miners to return to work, but meanwhile the costliness of Continental fuel and the scarcity of semi-finished material are severe handicaps. The engineering unions have postponed their demand for a 20s. wage advance because of the industrial situation. Dorman, Long & Co. are resuming partial operation of the Redcar and Clarence steel works to supply their own needs.

The William Gray Shipyards at West Hartlepool are resuming operation with foreign steel. Most steel works are now well booked and virtually clear of surplus stock so that the outlook is favorable for good business when the coal dispute is settled. British manufacturers of rolling stock have received some good orders from the Indian railroads.

The tin plate market is dull and the outlook discouraging as a result of the improbability of any immediate general coal settlement. Stock plates are bringing 21s. 3d. to 24s. per base box. Tin plate rolled from foreign bars is quoted at 21s. 6d. for September-October delivery and British tin plate for post-strike delivery is nominally at 20s. per base box, f.o.b. works port.

The Continental markets are firm with semi-finished material distinctly scarce and recovery of the franc exchange offsetting disappointment at the postponement of international cartel negotiations until the middle of September because of the disagreement of certain Belgian and French works. In France Denain Anzin has blown in three reconstructed furnaces at Escaudain. In Germany the Concordiahütte at Engers, recently acquired by the Vereinigte Stahlwerke (United Steel Works) from Rombacher Hüttenwerke, is being shut down. The Acieries Reunies de Burbach-Eich-Dudelange in Luxemburg is closing its works at Terre Rouge.

FINANCE RULES MARKET

Belgium Struggles with Depreciated Franc—Hopes Raised on Small Recovery

BRUSSELS, BELGIUM, Aug. 6.—The currency crisis still rules the iron and steel market. Lorraine and Luxemburg mill owners, like the Belgians, raised their quotations, but do not seem in a hurry to commit themselves at present rates. Germans are no longer dangerous, since they raised their prices by 25 per cent.

Pig Iron.—Spot does not exist and the tendency is firm; a few lots of No. 3 have been sold between 600 and 625 fr.

Semi-finished Products are extraordinarily firm. Steel works are overwhelmed with orders. No spot is to be had. Normally, one quotes for export £4 3s. to 4£ 5s. for blooms, £4 9s. to £4 10s. for billets, £4 15s. to £4 16s. for largets. We are assured that British buyers offer as much as £4 18s. for available largets.

Iron.—Business is limited. For export, £4 15s. is quoted for ordinary qualities; inland, 900 to 925 fr. per ton.

Finished Steel.—Taking advantage of the recovery of the franc, confidence has improved and the market is more favorable. Prices are notably progressing and demand is much stronger but seldom satisfied. Inland, 850 to 875 fr., ex-works, is reported for beams; 900 to 925 fr. for bars. For export, beams went up from £4 11s. to £4 15s. or £4 16s.; channels to £4 17s. and £4 18s. 6d.; bars, from £4 13s. or £4 14s. to £4 16s.; wire rods, to £5 7s. 6d.; hoops, to £6 12s. 6d.

Sheets.—The market is firm, quotations having advanced appreciably. Orders are placed in moderate fashion, for plants are either busily engaged or prefer to act reservedly. One quotes f.o.b. Antwerp for heavy sheets, £5 5s.; for mediums, £5 15s.; for 1.5 mm. (No. 16½ gage), £8 to £8 2s. 6d.; for 1 mm. (No. 20 gage),

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British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, f.o.b..	£2 10s.	to	£2 12½s.	$12.15	to	$12.76	
Bilbao Rubio ore† ..	1 1	to	1 1½	5.10	to	5.16	
Cleveland No. 1 fdy.	4 12½	and	4 13*	22.48	and	22.60*	
Cleveland No. 3 fdy.	4 10	and	4 10½*	21.87	and	22.00*	
Cleveland No. 4 fdy.	4 9	and	4 9½*	21.63	and	21.75*	
Cleveland No. 4 forge	4 8½	and	4 9*	21.50	and	21.63*	
Cleveland basic (nom.)	3 15	and	3 15½*	18.23	and	18.35*	
East Coast mixed...	4 2½	and	4 3*	20.04	and	20.17*	
East Coast hematite.	3 16	to	3 16½	18.46	to	18.58	
Ferromanganese ...	14 0			68.04			
*Ferromanganese ..	14 0			68.04			
Rails, 60 lb. and up.	6 15	to	7 5	32.80	to	35.23	
Billets	6 10	to	8 0	31.59	to	38.88	
Sheet and tin plate bars, Welsh	6 5			30.37			
Tin plates, base box.	1 0	to	1 4	4.86	to	5.83	
Black sheets, Japanese specifications	13 10	to	14 0	65.60	to	68.04	
				C. per Lb.			
Ship plates	7 5	to	7 15	1.57	to	1.68	
Boiler plates	9 5	to	11 0	2.00	to	2.39	
Tees	7 10	to	8 0	1.62	to	1.73	
Channels	6 15	to	7 5	1.46	to	1.57	
Beams	6 10	to	7 0	1.41	to	1.52	
Round bars, ¾ to 3 in.	7 12½	to	8 2½	1.65	to	1.76	
Steel hoops	10 10	and	11 0*	2.28	and	2.39*	
Black sheets, 24 gage	11 0	to	11 5	2.39	to	2.44	
Galv. sheets, 24 gage	16 10	to	16 15	3.58	to	3.60	
Cold rolled steel strip, 20 gage.....	18 0			3.91			

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron: (a)						
Belgium	£3 10s.			$17.01		
France	3 10			17.01		
Luxemburg	3 10			17.01		
Basic pig iron: (a)						
Belgium	3 3			15.31		
France	3 3			15.31		
Luxemburg	3 3			15.31		
Coke	0 18			4.37		
Billets:						
Belgium	4 15	to	£4 17½s.	23.08	to	$23.69
France	4 15	to	4 17½	23.08	to	23.69
Merchant bars:				C. per Lb.		
Belgium	5 2½	to	5 5	1.13	to	1.15
Luxemburg	5 2½	to	5 5	1.13	to	1.15
France	5 2½	to	5 5	1.13	to	1.15
Joists (beams):						
Belgium	5 0	to	5 2½	1.10	to	1.15
Luxemburg	5 0	to	5 2½	1.10	to	1.15
France	5 0	to	5 2½	1.10	to	1.15
Angles:						
Belgium	5 2	to	5 4	1.10	to	1.13
⅛-in. plates:						
Belgium	6 2½	to	6 5	1.35	to	1.37
Germany	6 2½	to	6 5	1.35	to	1.37
¼-in. ship plates:						
Belgium	5 12½	to	5 15	1.24	to	1.26
Luxemburg	5 12½	to	5 15	1.24	to	1.26
Sheets, heavy:						
Belgium	6 3	to	6 4	1.33	to	1.34
Germany	6 3	to	6 4	1.33	to	1.34

(a) Nominal.

£9 to £9 2s. 6d.; for 0.5 mm. (No. 26 gage), £10 10s. There are no inland prices.

Scrap.—The market is upside down, because of currency fluctuations. It is prudent not to quote.

New Agreement Between Austrian and Czechoslovakian Steel Producers

PRAGUE, CZECHOSLOVAKIA, Aug. 5.—The agreement between the Czechoslovakian iron and steel industry and the Alpine Montangesellschaft in Austria, which was recently terminated, has been replaced by a new understanding, under which the Czechoslovakian producers agree to reduce the maximum quota of their sales of iron and steel to Austria, while the Alpine company accepts a reduction in its quota of export sales.

Czechoslovakian industry is depressed. The export surplus in the first half of 1926 was only 403,000,000 paper crowns compared with 874,000,000 in the first half of 1925. The iron and steel industry had a more profitable year in 1925 than in 1924. Building was active and purchasing by Rumania, Italy, Britain and Switzerland was active. The engineering industry, however, was not as well booked with business last year as formerly and this year confidence has been somewhat shaken by the financial difficulties of the Brunn Machine Co., a large manufacturer, which has appeared as a borrower in the United States.

Australia Raises Duties on Steel

Effective Aug. 12, Australian import duties on a number of finished lines of steel products, except hoops, were increased, according to a cablegram received by the Department of Commerce, Washington, from Trade Commissioner E. G. Babbitt. Hoops, which have been free, will carry a duty of 10 per cent ad valorem, effective Oct. 1, under the general tariff. While the British preferential rates remain unchanged, there was an advance in the general rates applying to imports from the United States and all other countries except the United Kingdom.

The former and new general rates, together with the British preferential duties, follow:

	British Preferential Rates	General Tariff	
		Old Rates	New Rates
Bars, rods other than wire rods in coils, bars of fancy pattern in the state in which they leave the rolls, per ton	44s.	80s.	£6
Wire rods in coils, per ton	44s.	80s.	80s.
Wire of No. 15 or finer gage, ad valorem	20 per cent	35 per cent	45 per cent
Wire, fencing, gage No. 8 to 14, both gages inclusive, for use only as fencing wire without further manufacture, or for such manufacturing purposes as may be described by departmental by-laws, ad valorem	Free	10 per cent	£6 per ton
Wire, other, per ton	52s.	90s.	£6
Hoops, ⅛-in. thickness, by width of 1 in. to 2 in. inclusive, per ton	70s.	95s.	£6
Hoops, n.o.p., ad valorem.	Free	10 per cent	10 per cent
On and after Oct. 1, 1926, per ton	....	....	£6
Rails, weighing 50 lb. per yd. and over, per ton	35s.	75s.	£5
Rails, weighing less than 50 lb. per yd., per ton	45s.	85s.	£6 5s.
Fishplates, tie plates, and rods, per ton	48s.	95s.	£6 5s.
Rolled iron or steel beams, channels, joists, girders, columns, trough and bridge iron and steel: not drilled or further manufactured, per ton	48s.	90s.	£6 5s.
Drilled or further manufactured, per ton	48s.	90s.	£6 5s.
Ad valorem	25 per cent	35 per cent	35 per cent
Barbed wire, per ton	68s.	105s.	£9
Wire netting, ad valorem.	Free	10 per cent	£10 per ton
Wire, iron and steel, for use in the manufacture of barbed wire and wire netting as prescribed by departmental by-laws, per ton	52s.	90s.	£6

JAPAN BUYS BLACK SHEETS

Considerable Tonnage Bought Here and in Britain for November Delivery—Tin Plate Active

NEW YORK, Aug. 26.—During the past fortnight export to Japan has been more active than for some time, with Japanese buyers exhibiting considerable interest in tin plate and light gage black sheets. Total purchases of sheets recently are estimated at close to 15,000 tons, most of which were purchased for November-December delivery. The market price is reported to have been about $81 per ton, c.i.f. Japan, with practically all the business going to the two leading interests. In the meantime the German producer of light gage, open hearth black sheets, the Gelsenkirchen Bergwerks A. G., is reported quoting about $80 per ton, c.i.f. Japan, and British sellers are offering sheets at $73 to $75 per ton, c.i.f., for delivery after settlement of the coal strike. It is suggested in some quarters that the recent purchases of sheets in the United States at $81 may not prove particularly profitable if the British coal strike is settled in time for British mills to make equivalent delivery, as there has been a fair volume of purchases of British sheets for after strike delivery, the price having proved rather attractive.

Tin plate has been active in recent Japanese business. A recent inquiry from the Ogura Oil Co. called for about 10,000 boxes of primes and 4000 boxes of seconds. The 29,500 boxes of tin plate for the Nippon Oil Co., which were awarded to Iwai & Co., are understood to have been placed with the leading independent. Japanese demand for seconds or wasters has been heavy. One large Japanese export house closed about 5000 boxes of seconds not long ago and numerous small orders have been closed, the total of purchases having been limited only by the available tonnages at the mills.

In addition to purchases of sheets, Japanese electrical manufacturers have been in the market for electrical sheets. The Shibaura Engineering Co. recently closed on a small lot and the Mei Densha, another manufacturer of electrical equipment, recently inquired for 300 to 500 tons, a small part of which has been purchased. The Nippon Oil Co., which was in the market for 4500 meters of oil well casing is understood to have awarded the business to the French Mannesmann company. The five miles of 91-lb. rails for Nagoya municipality were placed by a large Japanese export house with the leading interest.

Importers of European steel continue active, reporting numerous small lots under inquiry and being purchased. While French and Belgian prices are apparently at about the same level as in recent weeks, the tendency of the German market is upward, recent advances having totaled 5c. to 10c. per 100 lb. Importers of German steel products report the market at about 1.80c. per lb., c.i.f. duty paid on intermediate grade Thomas steel bars with open hearth reinforcing bars made to A. S. T. M. specifications at 1.90c. to 1.95c. per 100 lb. Structural shapes range from 1.70c. to 1.75c. per lb., c.i.f. duty paid for intermediate grade Thomas steel. In addition to inquiries from American consumers for bars and structural steel one importer reports quoting on 1000 tons of black sheets.

Small British Steel Production

LONDON, ENGLAND (*By Cable*), Aug. 18.—July production of pig iron was only 17,900 gross tons and steel production 32,100 tons.

This shows the continuing effect of the grip of the coal strike upon the steel industry in Great Britain. Corresponding figures for June showed a pig iron production of 41,800 tons and steel of 32,800 tons. In May pig iron output was 88,800 tons, while steel was 45,700 tons. These compare with April figures—before the strike began—of 539,100 tons of pig iron and 661,000 of steel. Present conditions are similar to those in 1921, when steel production fell off from 359,000 tons in March to 3000 tons in June, while at the end of June there were no blast furnaces in operation.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Continued expansion of retail trade and post office receipts.
2. Upturn in unfilled steel orders.
3. Upward trend of steel scrap prices.
4. Increase in bank debits (checks drawn).
5. Earnings of laborers large compared with living costs.
6. Efficiency in production enables manufacturers to profit at low prices.

Unfavorable Factors

1. Decline in P/V line (demand, on the average, weak).
2. Sagging commodity prices.
3. Building contracts and permits declining.
4. New business enterprises smaller in volume.
5. Employment in factories declines further.
6. Rising trend of money rates.
7. Farm prices low in comparison with non-agricultural prices.

A FAIRLY even balance between the favorable and the unfavorable factors explains the current uncertainty as to the future of business. The barometers point in opposite directions. It may be that the fall will witness a smaller increase in business activity than usual.

IT now looks as though a short secondary period of industrial expansion lies immediately ahead—as though business is going to make a "double top," much as the stock market is doing. This development, if it occurs, is not likely to be long sustained, however, as the present large volume of industrial output and the declining trend of commodity prices make any large and long continued expansion unlikely. Moreover, a decline in building activity is to be expected by the end of the year, which would strongly tend to check expansion. It should be remembered that building activity has been one of the main supports of the "prosperity" of the last few years.

P/V Barometer Prediction Is Downward

JULY was another month of divergence between the trend of our P/V line and the trend of steel ingot production. In other words, the barometer continues to forecast a recession in general business, while the output of steel ingots, making allowance for the merely seasonal changes, continues to show an expanding trend. It is true that production of steel ingots in July decreased a little, but not so much as usual, and the fact remains that it is large. Either the seasons are awry or the steel makers are unusually slow in feeling the influences which determine the course of the P/V line.

The decline in that barometer is due to the continued sagging in the general average of commodity prices, at the same time that the physical volume of trade has expanded. After continuing at a high level for months the volume of trade, measured in quantity of goods, actually increased in June and July. This situation may be taken to indicate that the markets for commodities are, on the average, not strong enough to take the current industrial output without sagging. So large a supply as is now pressing on the markets gives the buyers the upper hand. As an economist might say, "The effective demand, or demand in intensity per unit, is reduced."

Business undoubtedly will expand further until the equilibrium between demand and supply is restored either (1) by curtailed production, bringing supply down to a point where sellers can take a stand, or (2) by an increased demand on the part of buyers, leading them to bid goods up. In view of the long-continued high rate of production, however, and the large inventories which many manufacturers are carrying, it is highly probable that the curtailment remedy will become necessary.

Usually this development appears in the industrial average within about six months after a decline in the P/V line, and frequently (though not always) steel production turns down a little sooner than the industrial average. Evidently the present momentum of industry is going to carry it somewhat beyond the usual

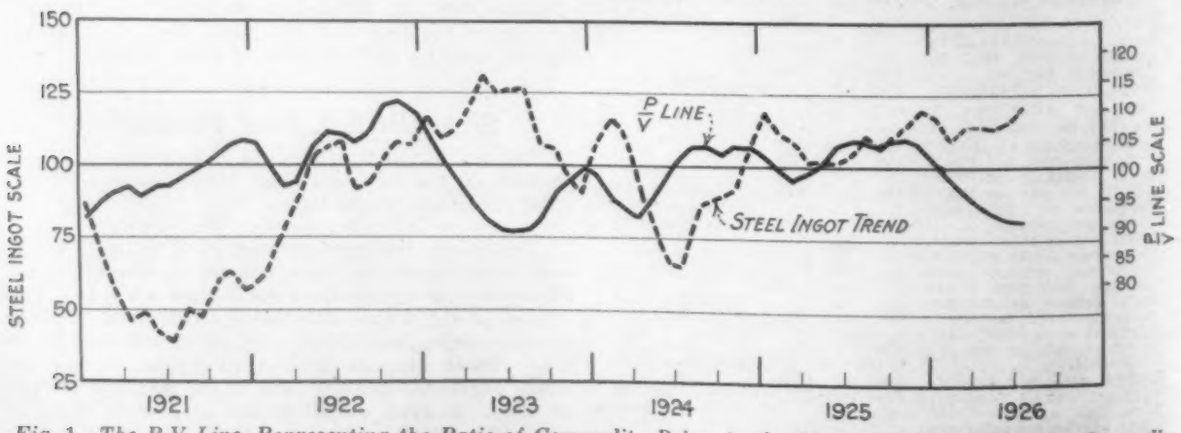

Fig. 1—The P-V Line, Representing the Ratio of Commodity Prices to the Physical Volume of Trade, Generally Anticipates the Trend of Business by About Five Months. It turned downward in December and has continued a steady drop until now it is well below normal. Ingot production has not yet responded

In This Issue

New production record established by automotive industry for first seven months of year. —Close to 2,700,000 vehicles were made, exceeding the entire output of 1922, the record year up to that time.—Page 555.

Tests of electrically welded steel girders reveal high strength.—Welds hold until web has buckled and girders have deflected several inches.—Page 543.

Coal strike is strangling English iron industry.—July pig iron output was only 17,900 gross tons as contrasted with the April production, before the strike, of over a half million tons.—Page 557.

Stove polish and resin were very necessary supplies in the early days of electric traveling cranes.—The stove polish (graphite) was used as a lubricant, and the resin to help the electric brake hold the load, veteran recalls.—Page 542.

In blast furnace slag analysis, low iron content indicates a hot slag.—And low sulphur content in the iron indicates a high hearth temperature.—Page 547.

Centrifugally casting iron or steel a difficult operation.—Alloys are best suited for this process, as they can attain such temperatures as will permit them to be ejected from the mold without cracking due to contraction.—Page 549.

The fall increase in business will be smaller than usual, Dr. Haney predicts.—Unexpected and unusual activity during the summer months will tend to lessen the volume of fall trade.—Page 558.

Little more than 10,000 gain in common labor during fiscal year.—Although 43,543 common laborers entered the country, 33,107 emigrated.—Page 562.

A well conducted employees' magazine will cut labor turnover.—A publication run as a plant newspaper for employees will help create that liking for an organization that binds men to it.—Page 598.

Prophesies the general adoption of worm drive for traveling cranes.—Pioneer crane builder believes the traveling crane of the future will have the worm drive and will be equipped throughout with anti-friction bearings.—Page 543.

Is steel output too high?—Yes, says Dr. Haney, predicting that production cannot be maintained at the present rate for many months longer.—Page 561.

Buying steel to meet actual requirements reflects changing merchandising methods.—Selling policies of mills are being based upon ultimate consumption, with gradual disappearance of old method of buying in general waves.—Page 565.

Case-hardening and forging properties are combined with unusual machinability in newly developed steel.—Product said to be especially adapted to the manufacture of automobile parts at reduced costs.—Page 546.

Proposed European steel pool is designed to avoid overproduction.—Reduction of output to facilitate advance in prices is not contemplated and an agreement on minimum export prices is unlikely.—Page 567.

Personal visits to plant by manager stimulate loyalty of workers.—Industrial good feeling is not fostered by the formal inspection tour of earlier days.—Page 566.

Will build metal-clad airship.—Craft with hydrogen capacity of 200,000 cu. ft. ordered built by Navy Department is only experimental step in construction of much larger ships.—Page 563.

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Readers' Wide-Ranging Queries

NOT all the service THE IRON AGE editors give its readers is to be found within the editorial pages of the paper. Far from it. Inquiries which come by mail and telephone are multitudinous and cover a wide range of subjects, many of them outside the scope of this journal, but they are answered if the information is available.

Letters are received from all parts of the world. A German college student wrote recently asking for a great deal of information for the preparation of a college thesis; a company in Mexico wanted to know where to buy machinery for bottling mineral water; requests came from far-off India and Australia for lines which selling agents there can represent.

In a day's inquiries comes one for names of manufacturers of machines for making glass marbles; another asks for machines for inserting bristles in tooth brushes. A malleable castings company of importance seeks names of companies making hot-dip galvanizing equipment; a scrap dealer wants to know his rights in the matter of rejected cars of scrap; a stamping company desires statistics on the production of zinc ore in the United States; a writer of an industrial book wants figures on wages and salaries paid to workers in the steel industry. Requests for published prices on various products are numerous. Among the queer inquiries was a recent one for a source of supply of diphtheria germs.

All these requests draw largely upon the time and resourcefulness of the editors, but they are cheerfully answered and in a large percentage of cases the desired information is passed on.

For News Summary See Reverse Side

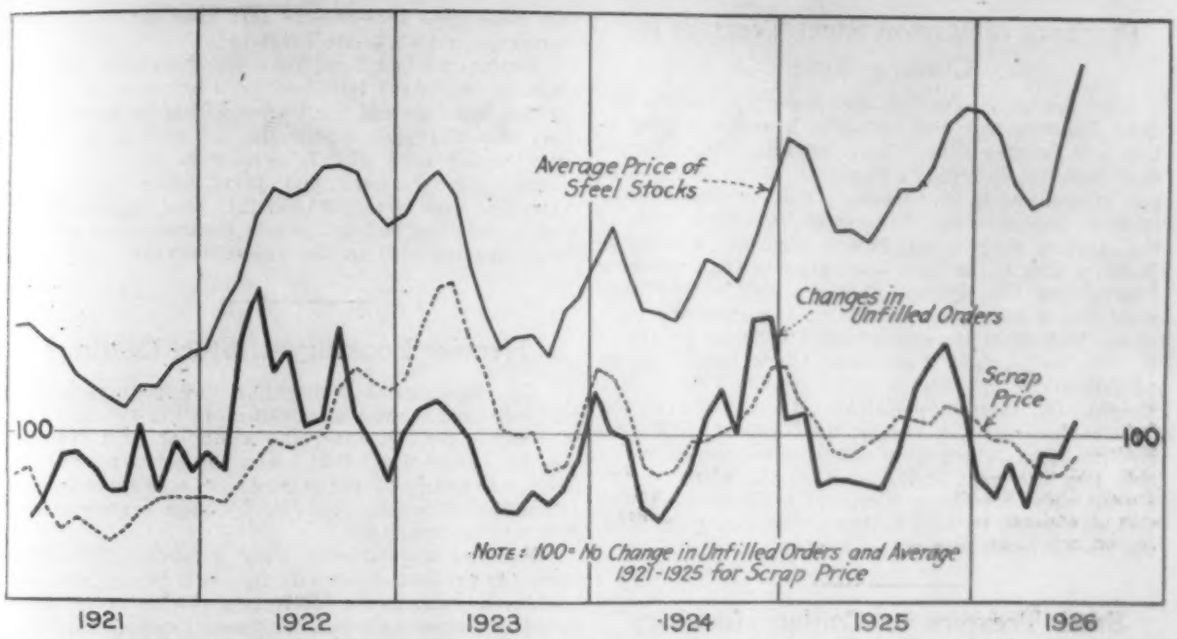

Fig. 2—Little Significance May Be Attached to the Recent Movements of the Curve Showing the Rate of Change in Unfilled Orders or the Curve of Scrap Prices. Neither forecast the sharp rise in stock prices. Both, however, are favorable to continued activity

period. This may easily be explained by the continued high purchasing power and the inflationary effect of the extended use of the installment plan in selling goods. In the case of steel, the extraordinary expansion of automobile production and the closely related development of oil activity, added to the prolonged building boom, are ample explanations.

The writer does not undertake to say when the downturn in industry will occur. Obviously the lag between the P/V line and industrial conditions will vary from cycle to cycle. It is merely concluded that steel production—and production in a good many other industries—is too large to be maintained at the existing rate for many months longer. A glance at the chart will show what happened in 1923. It now seems probable that the steel industry will fail to show the usual autumnal expansion and that our adjusted curve will decline toward the end of the year—perhaps as early as September.

Certainly the continued decline in building contracts and permits fits in with this hypothesis.

Many observers must have noted that the current trend is either to reduce prices or to give the buyer a better article for the same money. This trend may be seen in woolen goods, refrigerators and automobiles —perhaps even in steel. Obviously the policy can be successful only as the volume of production is large, thus reducing unit costs. Down to date, the prevalence of installment methods of selling has helped to maintain a large volume of trade. The question, however, arises: How long can this condition continue without overproduction?

Steel Barometers Favorable

THOUGH our barometer of general business is still pointing downward, barometers based on the steel industry show an upward trend. This is true of both unfilled orders and steel scrap prices. In June both indicated a turn for the better, but not decidedly. In July, however, they were distinctly favorable.

The unfilled orders of the Steel Corporation, though maintaining a low level in the last few years, *by their rate of change* still show the trend of sales. It is therefore significant that the figure increased in July, and the more so because unfilled orders usually show a slight decrease in that month. This barometer forecasts a continued large volume of steel production, with firm prices. Evidently, too, the stock market is of the same opinion, as the average price of steel stocks in July was much higher than in June and was well above the December peak. In fact, steel stocks averaged higher even than at the 1919 peak. Rarely do steel securities decline materially while the trend of the unfilled orders barometer is upward.

The price of steel scrap, which is often barometric,

(*Continued on page 587*)

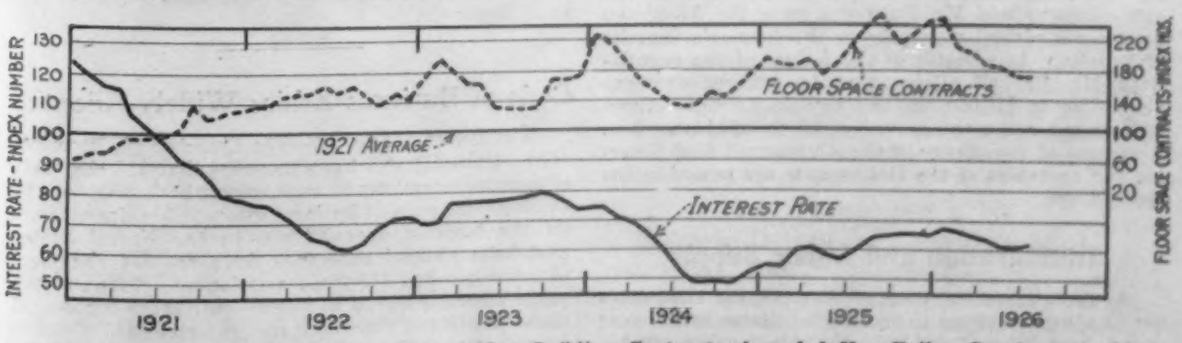

Fig. 3—The Index Based on Square Feet of New Building Contracts Awarded Has Fallen Continuously Since January and Is Now at the Lowest Point Reached in 20 Months

Schedule of the next installments of the Business Analysis and Forecast, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: Sept. 16—Activity in Steel Consuming Industries; Sept. 23—Position of Iron and Steel Producers; Sept. 30—General Business Outlook.

Program of Boston Steel Treaters for Coming Year

The Boston chapter of the American Society for Steel Treating will hold its seventh annual outing at Red Hill Country Club, North Reading, Mass., Saturday, Sept. 11, at 2 p.m. There will be outdoor sports and bridge, and in the evening a chicken dinner. The chapter's tentative 1926-27 program includes at visit at the plant of the Simonds Saw & Steel Co., Fitchburg, Mass.; a visit at the Fore River plant of the Bethlehem Shipbuilding Co., Quincy, Mass.; a visit at a Boston gray iron foundry; an address on tool steel and tools at the Massachusetts Institute of Technology by James G. Gill, metallurgist Vanadium Alloys Steel Co.; an address at the institute on nickel steel by Charles McKnight, Jr., International Nickel Co.; a visit at the Boston Navy yard; a visit at the Mystic Iron Works, Everett, Mass., where there will be an address on malleable iron castings; and a visit at the plant of the United Shoe Machinery Corporation, Beverly, Mass., with an address by J. C. Keilman, New Departure Mfg. Co., on hot upset methods of forging.

Steel Treaters to Confer Honorary Memberships on Gary and Schwab

A feature of the annual banquet of the American Society for Steel Treating to be held Thursday evening, Sept. 23, at the Drake Hotel, Chicago, will be the presentation of certificates of election to honorary membership to Elbert H. Gary and Charles M. Schwab. On the same evening the Henry Marion Howe medal, established in honor of the late Henry Marion Howe, honorary member of the society, will be awarded to the author of the best paper published in the society's Transactions during the past year. The name of the winner of the medal will not be announced prior to the actual award. A founder membership in the society will be presented to Arthur G. Henry, Chicago, who was one of the organizers of the association and is known as father of the National Steel and Machine Tool Exposition, which is held simultaneously with the conventions of the society. It was under his management that the first exposition was held in Chicago in 1919.

Aluminum Company Sued Under Anti-Trust Law

A suit for $45,000,000 for alleged violation of the Sherman anti-trust law was filed this week in the United States District Court in New York against the Aluminum Co. of America by George D. Haskell, president Bausch Machine Tool Co., Springfield, Mass. Mr. Haskell charges that the Aluminum company entered into an agreement with the late James B. Duke which prevented the conclusion of negotiations between his own company and Mr. Duke and gave the Aluminum company a virtual monopoly of the country's deposits of bauxite. As a result of the failure of the negotiations Mr. Haskell alleges that he suffered damages amounting to $15,000,000, and he asks for three times the amount under the provisions of the anti-trust law. A number of the officers of the Aluminum Co. of America and executors of the Duke estate are named in the proceedings.

Immigration and Labor Supply

As reported in our issue of Aug. 19, the total number of aliens admitted to the United States in the year ended June 30 was 496,106. Of this number 304,488 were immigrants, against 294,314 in the previous fiscal year. Only 76,992 immigrant aliens left the United States during the year, this being 17 per cent less than in 1924-25. The net gain of population from immigration thus became 227,496, according to a compilation of the National Industrial Conference Board, New York. This net gain was 64 per cent less than during the fiscal year 1923-24—the last year before the new restriction act went into effect.

During the last fiscal year 43,543 common laborers entered and 33,107 left, leaving a net gain of 10,436. Skilled labor entered the United States in larger numbers than the year before, the net gain in the fiscal year having been 47,147, against 42,422 in the previous year. Farmers and farm laborers, however, showed a gain of only 25,598 this year, against 28,266 last year. Professional people showed a net gain of 9041, against 8367 in the preceding year.

Heavier Bookings of Steel Castings

July bookings of commercial steel castings, at 82,628 net tons, showed an advance of 21½ per cent over the 68,030 tons in June, and a similar gain over the 67,881 tons of July, 1925. For the seven months the gain was nearly 20 per cent, as the tonnage advanced from 519,703 to 620,425. July bookings represented 64 per cent of capacity.

Railroad specialties in July accounted for 29,258 tons (49 per cent of capacity for those items) and miscellaneous castings for 53,370 tons (77 per cent). Railroad specialties have run consistently behind the other group since January. For the seven months they represented 58 per cent of capacity, against 78 per cent for miscellaneous castings.

Production in July was 93,536 tons, according to the Department of Commerce report. This was about the same as in June, but was lower than the average (97,596 tons) of the first six months. Production has outstripped bookings, representing 679,114 tons in seven months, against 620,425 tons of bookings.

Metal Section Program for Safety Congress

The program for the metal section at the Fifteenth Annual Safety Congress, to be held in Detroit Oct. 25 to 29, has been tentatively arranged by E. J. Quesnel of the Commonwealth Steel Co., Granite City, Ill. Harry A. Schultz, of the United States Steel Corporation, New York, will speak on "Every Department Head a Safety Director," and Clarence H. Howard, president Commonwealth Steel Co., on "Anchoring Safety Progress." Other speakers will be T. H. McKenney, Illinois Steel Co.; John A. Oartel, Carnegie Steel Co.; J. S. Voss, Central Steel Co.; E. J. Quesnel, Commonwealth Steel Co.; Homer Herron, International Harvester Co.; J. M. Woltz, Youngstown Sheet & Tube Co.; Frank H. Rowe, Wheeling Steel Corporation; A. G. Gibson, Spang-Chalfant Co.; F. C. Bennett, Buckeye Steel Castings Co., and J. A. Northwood, Bethlehem Steel Co. On Friday morning, Oct. 29, members of the section will visit the River Rouge steel works of the Ford Motor Co.

Code of Business Ethics Widely Adopted

WASHINGTON, Aug. 24.—The Chamber of Commerce of the United States has announced that 813 chambers of commerce and trade associations have adopted the fundamental code of business ethics it has formulated. Of the business organizations in the United States that have pledged adherence there are 574 chambers of commerce and 239 trade associations. "Many of the trade associations," it is pointed out, "have for one of their important functions the enforcement of trade practices. . . . The principles of business conduct were formulated as a general guide for all lines of trade and were not intended to govern specific trade customs of any one particular line of business. In view of this, a number of trade associations, in adopting the chamber's code, have at the same time included with them a supplementary code defining rules for guidance of their members in transacting business with each other."

REINFORCING STEEL

Awards of Week 8100 Tons and New Projects Up For Bids Total 3000 Tons

A fairly active week in concrete reinforcing bars brought total awards of about 8100 tons, including four jobs of 1000 tons or more. New work up for bids total close to 3000 tons. Awards follow:

Reinforcing Bar Awards

BOSTON, 145 tons, Upham's Corner Market, to Barker Steel Co.

BOSTON, 150 tons, Boston & Maine freight shed, to unnamed company.

BOSTON, 200 tons, Morgan, Inc., warehouse, to Concrete Steel Co.

WEYMOUTH, MASS., 150 tons, power house addition, Edison Electric Co., to Youngstown Sheet & Tube Co.

PROVIDENCE, 1200 tons, reservoir, to Portland Rolling Mills, Portland, Me.

NORTHPORT, L. I., 1030 tons, United States Veterans Hospital, to Truscon Steel Co.

NEW YORK, 175 tons, State highway work, to Carlem Engineering Co.

PITTSBURGH, 100 tons, Suburban Electric Development Co., to Electric Welding Co.

PITTSBURGH, 200 tons, Marcus Loew Theater, to Carlem Engineering Co.

DETROIT, 1200 tons, Great Lakes Terminal Building, to Pollak Steel Co.

BATTLE CREEK, MICH., 100 tons of rail steel for hotel, to Olney J. Dean & Co.

CHICAGO, 1000 tons, United States Postoffice garage, to Olney J. Dean & Co.

CHICAGO, 130 tons of rail steel, Jackson Park Hospital, to Calumet Steel Co.

CHICAGO, 200 tons, loft building at 173 West Madison Street, to Truscon Steel Co.

CHICAGO, 140 tons, Winston apartments, to the Concrete Engineering Co.

CHICAGO, 200 tons of rail steel, apartment building at 432 Briar Place, to Inland Steel Co.

CHICAGO, 200 tons of rail steel, apartment building at 211 East Delaware Street, to Inland Steel Co.

CHICAGO, 100 tons, warehouse for R. C. Wieboldt & Co., to Concrete Engineering Co.

CEDAR RAPIDS, IOWA, 450 tons, Roosevelt Hotel, to unnamed bar dealer.

MINERAL WELLS, TEX., 325 tons, Crazy Well Hotel, to Laclede Steel Co.

RENO, NEV., 200 tons, Riverside Hotel, to unnamed San Francisco jobber.

SAN FRANCISCO, 250 tons, building for Traung Label & Lithograph Co., to unnamed local firm.

SAN FRANCISCO, 260 tons, factory for Kroehler Mfg. Co., to Badt-Falk & Co., San Francisco.

Reinforcing Bars Pending

BOSTON, 700 tons, Dorchester subway, Section 3.

BOSTON, 200 tons, Dorchester subway, Section 2.

CLEVELAND, 400 tons, coagulation basin for Division Street pumping station.

BEREA, OHIO, 150 tons, high school.

SOUTH HAVEN, MICH., 300 tons, filtering plant; general contractors, Cope & Fisher Co., Decatur, Ill.

CHICAGO, 250 tons, American League Baseball Club grandstand.

CHICAGO, 160 tons, public high school at Newcastle Street and Diversey Boulevard.

CHICAGO, 160 tons, public high school at Kilbourne and George Streets.

CHICAGO, 400 tons, Chatelaine Towers apartment building, Fitzgerald Construction Co., general contractor.

LA GRANGE, ILL., tonnage being estimated, public high school building.

SAN FRANCISCO, 200 tons, building for Daily News Publishing Co., Howard Street and Russ Avenue.

Protest Against Pig Iron Rates from Virginia to New England

WASHINGTON, Aug. 24.—A protest against rates on pig iron from furnaces in Virginia to points in Trunk Line and New England territories was again filed with the Interstate Commerce Commission last week by the Virginia Pig Iron Association. It is charged that the rates have destroyed the market for Virginia iron to destination in these territories. The railroads in replying have insisted that the rates are reasonable. The Chesapeake & Ohio and the Norfolk & Western railroads, originating lines of shipment for Virginia pig iron, did not join the defendants in the reply.

Contract Let for First All-Metal Airship

WASHINGTON, Aug. 24.—A contract let last week by the Navy Department to the Aircraft Development Corporation, Detroit, for what, it is said, will be the first metal-clad airship, has created a great deal of interest. The airship, which will be built chiefly as an experimental step looking to the construction of much larger all-metal ships, will have a capacity of only 200,000 cu. ft. of hydrogen, to be contained in a single cell without dividing chambers, and is to be completed within 40 days from Aug. 18. The ship is to be made of duraluminum. The Aircraft Development Corporation was the only bidder, with a tender of $300,000, which represents the amount provided in the present Naval appropriation act. The corporation estimates it has already spent that amount on preliminary plans and preparations for the ship and that the total expenditure will be about $700,000. Should the ship prove satisfactory, it is the plan of the Navy to build airships of 5,000,000-cu. ft. displacement, with the gas divided into cells.

The ship for which the contract has just been let will be 150 ft. long by 50 ft. in diameter and will carry 2000 lb. of fuel and 250 lb. of engine oil, with a reserve capacity of 600 lb. for fuel and oil. In addition to a crew of four it will carry eight passengers. It will have a speed of 70 miles an hour and a cruising radius of 2000 miles with hydrogen and 1200 miles with helium.

Structural Steel Sales Decline

Bookings of fabricated structural steel reported to the Department of Commerce for July are computed at 216,550 tons on the basis of reports from 173 firms, with capacity of 261,260 tons and actual bookings of 184,386 tons, or 71 per cent of their capacity. Shipments in July at 265,350 tons were 87 per cent of capacity. Bookings were slightly below June, which showed a computed tonnage of 219,600, and were considerably below July, 1925, with 247,050 tons.

For the seven months, bookings have aggregated 1,460,950 tons, or 3 per cent less than the 1,509,750 tons of last year. The figure was 5 per cent above the 1,391,750 tons of the first seven months of 1924. The lowering of building activity, particularly as regards forward work, undoubtedly accounts for the lower tonnage this year.

Shipments have exceeded bookings in every month since last October. For July shipments were 265,350 tons, compared with 253,150 tons in June, and with 250,100 tons in July, 1925. For the seven months shipments have amounted to 1,650,050 tons, or 12 per cent more than bookings. These shipments compare with 1,534,150 tons last year and with 1,418,120 tons in the first seven months of 1924.

Electric Drives for Scottdale Mill

The American Sheet & Tin Plate Co. has made a considerable appropriation for improvements at its Scottdale, Pa., works. Three steam engines for driving the mills will be replaced by motors and a sheet bar storage building of wooden construction will give way to one of steel and galvanized steel sheathing. This substitution of electricity for steam for driving the mills is part of a general plan of the company which is founded on the premise that first and subsequent costs are lower, since putting in new engines in place of old ones, in most instances, would mean also the building of new boiler houses.

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Welding Structural Steel

NEWS comes from several quarters of the great interest being taken in the welding of structural steel. On page 544 of this issue are described some well-planned experiments made on 40-foot roof trusses, with creditable results in respect to load-carrying ability of a welded truss. In THE IRON AGE of Aug. 5 we published an account of experiments at Carnegie "Tech" upon welded beam connections and welded girders, in which the joints resisted the applied loadings successfully, failure generally occurring in a truly elastic manner in the original metal some distance from the welds. Last month the American Society of Civil Engineers, meeting on the Pacific Coast, discussed a paper on structural welding by Professor McKibben, of Union College. Recently also the Bureau of Standards made tests to determine the strength of arc-welded plate girders.

All this, of course, does not mean that next week, next month, or next year, the riveting gun will be banished from bridges and buildings. It is an indication, however, that the welding idea has entered the structural steel field, and that we shall hear more of the employment of oxy-acetylene or electric welding in the construction of buildings and bridges. Already a number of well-designed shop buildings have been erected in the western oil fields, using second-hand pipe for the steel skeleton. Also the Westinghouse company has recently ordered two all-welded buildings from the American Bridge Co., each requiring several hundred tons of the usual beams and channels.

It is fair to point out that welding will meet pronounced resistance from structural men. Engineers and designers will not be favorably predisposed, because their handbooks are full of warnings against the use of welds, warnings dating back from the time when wrought iron was the standard structural material and all welding was done on the blacksmith's anvil. Welded construction will be impossible in cities and towns where building codes are enforced, until such codes are modified—admittedly a slow process. Fabricators and erectors will not be anxious to foster a method which would scrap a good portion of their tools and machinery. Labor unions will also have their say.

To overcome this opposition will require abundant demonstration that the welded joint in steel structures is as economical and reliable as it has been in other places, such as pipe joints, metal furniture, gasoline and oil vending tanks, automobile bodies. Each of these fields offered and continues to offer vigorous resistance to the application of the newer method of construction. But one of the leading oxygen producing companies has stated that over 1000 miles of trunk pipe lines for oil and gas are being constructed with welded joints during the present summer.

Engineers await with interest the next moves in the structural welding campaign. It is to be hoped that the work will be done only after the advice of competent authorities has been secured, and then placed in a shop jealous of its reputation and where close control of the welding operation is possible. In matters of bridges and buildings it is well to remember that sound engineering and expert craftsmanship are of far more importance than enthusiastic approval of an attractive innovation.

Wages Must Be Earned

SOME of the financial papers which exhibit fine economic sense on their editorial page let their columnists and paragraphers run wild. Thus we read such things as that the prosperity of America comes largely from high wages, while there is low consuming power in Europe on account of low wages. Of course the high consumption in America is ascribable to large production per worker; the smaller consumption of Europe, to smaller production. And so lower down in the scale to such countries as India and China. Wages in general are only the symbol of what the worker does. In other words, every worker has to earn his own wages.

This refers, of course, to the annual earning. A worker may have a very high daily wage (e.g., the bituminous coal miner by the Jacksonville scale) and a very low annual earning, and con-

sequently a low power for consumption—i.e., he will be able to live but poorly.

This inspires the thought of how much our prosperity would be enhanced if all workers could become imbued with this idea. For examples: If the unoccupied bituminous coal miners should desert the poor mines and migrate into other industries where they could find continuous employment; if the boot and shoe workers should be willing to make standardized goods for a reasonable share of the proceeds during the dull seasons of their industry; if the building mechanics would combine in the fabrication of some cheap houses when their services were not otherwise required.

Our real great waste is unemployment, irrespective of whether this be on account of the will of the worker or the miscalculation of his employer. In times past the employing class was largely responsible for shut-downs and the enforcement of loafing that the employee had to accept as an innocent victim. That old evil has been largely tempered by the cooperative efforts of producers to throw light upon their industrial positions and trim their sails accordingly. Many workers do not yet appreciate that it is up to them to contribute something toward this. They should not leave it to their managers to do all the thinking for them.

Steel Selling Policies

BETTER merchandising methods for steel mills, which were the burden of the address of President Grace of Bethlehem at the last meeting of the American Iron and Steel Institute, need to be studied until adequate results are achieved. Comment on the subject was made in this department of THE IRON AGE June 3 and June 17 and there is more to be said in that connection.

One chapter in the matter, previously referred to, is the proportionate distribution of steel to the different lines of consumption. Sales effort is misdirected if it crowds one class of consumers more than another. A second chapter is the seasonal requirements of the given line of consumption.

Buying of steel used to proceed in general waves. Steel was regarded merely as steel, and whether it was to be bought or not to be bought depended on whether or not steel mills were likely to grow busier and prices were likely to advance. Of late the buying has been in accordance with actual requirements, and those requirements do vary in the course of the year in any given line of consumption.

There was method but not madness in the old style. It is conditions rather than the temperaments of men that have changed. Everything used to work back to the steel ingot, there being an excess of steel finishing over steel making capacity; hence when ingot capacity was fully engaged all finishing mills could not be fully supplied. The market value then lay in the ingot, and prices on all finished steel products tended to rise and fall together, irrespective of the precise distribution of demand.

There was little opportunity for sellers to observe how actual consuming requirements were distributed through the year, and still less occasion to act accordingly, the point being to take the buyer when he was in the mood or indeed to take advantage of the mood.

Buying in accordance with actual requirements is thus rather a new thing, and the matter goes farther than the direct customer of the steel mill. The customers of the steel-mill customer do likewise. Whatever is seasonal in the ultimate consumption of steel thus works back to the steel mill in a manner that did not formerly obtain, and it becomes possible, and very advantageous, to study these things.

The steel trade's expectation of summer dullness, given such a jolt this year, was based upon performance; but it was the performance of men engaged in the commercial transactions, rather than of men engaged in the operations of consuming steel or putting it into actual use. No one could be found ready to grant that consumption is lighter in summer than at other times, or that it is the disposition nowadays to prepare long in advance for favorable weather.

Already no little statistical information is available indicating monthly activities through the year in various lines, and much more information can be brought to bear if the search is made. There are, for instance, monthly statistics of oil and gas wells sunk in various fields, with their climatic differences, of automobile production, truck production, fabricated structural steel shipments, etc. Selling effort should be directed accordingly. Everything does not depend on the buyer. If it did, there would be no salesmen, only agents.

Building Labor Restrictions

IN a session of the New York Industrial Survey Commission last week C. G. Norman, chairman of the board of governors of the Building Trade Employers' Association, made these emphatic statements:

"Every increase of wage in the building trade during the last 20 years has reduced the rate of production."

"While the cost of living has gone up 78 per cent, wages in the building trade have increased 125 to 300 per cent."

"In 1925 one-fifth of all the construction work in the United States was done in New York."

"Labor is restricting industry by means of closed books. There are very few of the unions in the building trades of New York that do not have restrictions to keep workers out by refusing to let competent workers and apprentices join their ranks. By keeping down the amount of available labor there is created an artificial shortage which enables the unions to keep wages artificially high, make higher wage demands and limit the amount of work done for the increased rates."

There is not the slightest doubt that the above were bold statements of facts. There is no opinion or conjecture in them.

"What is the remedy?" Mr. Norman was asked.

"Only more men than work," was the terse reply.

That was an answer founded on sound economic sense, a knowledge of the law of demand and supply. However, the unions are seeing to it that the supply of artisan labor shall be kept restricted. There would be, therefore, a remedy in legislation that would prohibit such restrictions, just as there would be a remedy for the evil in

the anthracite coal fields if the State of Pennsylvania should repeal its legislation restricting the right to work in that class of coal mines. Such remedies would not only be economically sound but also they would be in keeping with the spirit of Americanism that is violated and trampled upon by these monopolistic unions.

There are operators of industrial plants who would like to introduce improvements of practice but find them resisted by their men. Philosophically management postpones such plans for a more opportune time, which means when there may be more men than work. The desired innovations may then be made effective by *force majeure*.

The men who resist improvements in practice are blind to their own interest. The builders of New York are not blind. They have created a system that profits them and for that they are not to be blamed. Of course they will be blind if they cripple, if not kill, the goose that lays the golden egg. In the meantime it is the public that is blind.

Manager Contact with Works

ONE who for years has headed the management of a great metal manufacturing plant, in which he worked his way up from the bottom to the top, has never ceased to keep in close personal touch with all the manufacturing departments. His custom is to visit them at frequent but irregular intervals, in no fixed order, but as conditions suggest a close-up personal study. Usually he goes alone and by preference on Sunday or some other day when the shops are deserted. He goes about in leisurely fashion, never hurrying, alert to his surroundings. Should the trip be made on a day of regular operations he ignores the assistance of foremen or others, excepting when he himself has something to say. His practiced eye notes equipment, product in process and finished, general conditions, the hundred and one things great and small which to him have significance, favorable or unfavorable. The whys and wherefores of this manager's inspections he does not discuss excepting with his business intimates. But the thousands of men in the works have their own understanding of what it means.

They like it. To translate their comments into a few words, it gives them an intangible sense of intimacy. Perhaps the importance of their task seems to them greater because the "big boss" finds it worth his while to scrutinize it at first hand. Of course he knows a great number of the men by name. They appreciate that. The whole thing is stimulating. Were he to abandon the practice the works would miss him.

Some measure of direct contact between the management of a plant and the men, apart from that of the superintendent, is highly important, in the opinion of many industrialists. It works for the contentment and loyalty upon which is built up the so-called "industrial family," and helps to bridge the gulf in the event of disagreements. It pays for a manager to be neighborly with the workers. By so doing he comes to understand them and the intimate problems which concern their employment; and they understand him better.

It is a good sign when the good men of the rank and file have a friendly word for the head of the concern. A manager may have assistants who are fitted by nature and by good intentions to accomplish this contact. But they can never quite answer for him. When the critical time comes, when employees' earnings shrink under economic pressure, or when demand for labor exceeds the supply of good men and the company faces costly labor turnover and incompetent help, the man at the very top of the business is the one who counts. If he is well known to the workers and has won their respect and confidence his company is at an enormous advantage.

Today the great majority of industrial managers have had long practical training in the manufacturing end of their business. A large percentage are graduates from the plants they direct. When they go out into the shop they know what's what. But in not a few cases managers concentrate their attention on what they call the big things and leave details of the manufacturing end almost entirely to their lieutenants. Their mistake is in not realizing that one of these big factors is the attitude of the working forces toward the manager's office. This attitude cannot but be influenced by the occasional presence of the head of the business in the plant as an individual and not as a member of a formal inspection group.

CORRESPONDENCE

High-Silicon Steel for Structural Purposes

To the Editor: Dr. Gillett's article on "Silicon as an Alloy in Steel," in the Aug. 19 issue of THE IRON AGE, is particularly interesting in that it calls attention to various ways of increasing the ratio of the elastic limit to the tensile strength of steel by alloying with other elements of low cost.

While the use of silicon as an alloy for increasing the toughness of steel has been attempted by various investigators in the past, no particular use has been made of the results obtained by these investigators.

The recent production of a high-silicon steel for structural purposes by Edwin Bosshardt in Germany has brought up again the neglected and almost forgotten work of other steel investigators in former years. Attention has been called all over Germany to the advantages of high-silicon steel for structural purposes, and the production of steel with analysis closely like that first produced in the Bosshardt furnace has been undertaken by other competing steel works in Germany.

Dr. Gillett mentions that discussion still rages in Germany about the production of steel having an elastic limit of about 80 per cent of the tensile strength. The writer receives frequent notes on the progress of the controversy in Germany, and at present writing it seems proper to suggest caution before jumping at the conclusion that steel of the unusual toughness and high

elastic limit of the so-called "Freund" steel can be made in any or every furnace, of any or every type.

STERLING H. BUNNELL,
Consulting Engineer, American Bosshardt Furnace Corporation.
New York, Aug. 20.

Prices on Foreign Reinforcing Bars in the Eastern Market

To the Editor: In your issue of Aug. 12, page 451, you published a statement regarding concrete bars which apparently referred to this company. We sell our product at considerably higher prices than those at which foreign bars are usually sold in this market, and not lower than the market could afford or the average domestic supplier sells for.

According to your own statement on page 519 of your issue of Aug. 19, Youngstown warehouses are quoting on concrete bars $2.87, delivered New York, and we know that domestic competitors accept business on more than carload lots at $2.65 delivered on the job.

There are various smaller mills located in Jersey which sell reinforcing steel practically from stock for immediate shipment at a price of $2.25 base, or considerably lower than any of our prices or the established mill prices in Pittsburgh, including freight to New York. We sell selected and carefully inspected and analyzed material and expect to get better prices than the average dealer in foreign bars, and intend to maintain as closely as possible prices secured by domestic suppliers in this market.

We are a purely American company and not owned by a German steel company, as stated in your publication.

ROBERT E. JENNINGS, 2D,
President Newark Steel Products Corporation.
Newark, N. J., Aug. 23.

Central Alloy Steel Corporation Elects Officers and Directors

The new board of directors of the Central Alloy Steel Corporation, Massillon, Ohio, was elected Aug. 20 following the ratification of the merger of the Central Steel Co., Massillon, and the United Alloy Steel Corporation, Canton, Ohio, by the stockholders of the latter company at a meeting in New York, Aug. 17. The board was increased from nine to 15 members. Following the election of the board the new officers were formally chosen, these being the same as announced a few weeks ago at the time the merger was agreed upon. Executive and operating committees were also named. The organization of the new company is the final step in the merger. Until the formal ratification of the merger, the new organization, which with one exception has the same personnel of officers as the Central Steel Co., could not assume control of the United plant.

The new board of directors is as follows: F. J. Griffiths, chairman of the board; C. E. Stuart, president and treasurer; B. F. Fairless, vice-president and general manager; J. H. Schlendorf, vice-president in charge of sales; C. W. Kreig, vice-president and secretary; W. G. Mather, president Cleveland Cliffs Iron Co., Cleveland; D. T. Croxton, manager of pig iron department, Cleveland Cliffs Iron Co.; Harry Coulby, member of Pickands, Mather & Co., and formerly chairman of the board of the United Alloy company; Elton Hoyt, Pickands, Mather & Co., Cleveland; C. S. Eaton, Otis & Co., investment bankers, Cleveland, and chairman of the board of the Trumbull Steel Co., Warren, Ohio; J. O. Eaton, Otis & Co., Cleveland; Philip Wick, director of the Trumbull Steel Co., of which he was president during its reorganization; W. H. Prescott, Saginaw Bay Lumber Co., Cleveland, former director of Central Steel Co.; Bayard Dominick of Dominick & Dominick, New York brokers; I. M. Taggart, Massillon banker.

On the executive committee are H. Coulby, F. J. Griffiths, C. E. Stuart, W. G. Mather and C. S. Eaton. On the operating committee are F. J. Griffiths, C. E. Stuart, B. F. Fairless, J. M. Schlendorf and J. O. Eaton.

George H. Freeborn, who was auditor of the Central Steel Co., was elected assistant treasurer and J. Paul Mosley was made assistant secretary.

THE EUROPEAN STEEL POOL

Four Countries Seek an Arrangement to Prevent Overproduction

PARIS, Aug. 16.—What are Germans, French, Belgians and Luxemburgers seeking in the projected agreement of steel companies? To proportion production to the real needs of consumption so as to avoid an overproduction which is detrimental to all. Overproduction creates sharper competition and decrease in price, and price decrease causes the demand to stop. The projected agreement does not aim, as has been said, at a reduction of the output in order to facilitate an advance of prices.

How will this project work out, which so far takes in only the four great steel producing countries in western Europe? According to the manner of cartels of other years, a fund is to be established, each country paying in a certain amount for each ton of steel output allotted to it. The percentages of the total production assigned to the different countries having been agreed upon, any country producing in excess of its allotted tonnage must pay into the pool a stipulated penalty for each ton of excess output. Where a country, due to market conditions, cannot ship the amount allotted to it, compensation is awarded equal to half the tonnage rate established as the penalty for overshipment. At the end of the financial year whatever remains in the fund will be divided among the member countries according to their production allotments.

It does not appear that there is any agreement as to a minimum export price. This was thought to be unnecessary, since the scheme establishes a relation between supply and demand and no adhering country would find it to its interest to cut prices. Furthermore, it is to be considered that any established price schedule would put a weapon in the hands of countries not included in the arrangement. Further, the agreement does not attempt regulation of the domestic markets of the member countries, which would indicate that each adhering group agrees not to interfere with the home trade of the others.

It is well understood that such an international agreement cannot be made effective until each country is able to realize unity among its own steel producers. It may fairly be said that such accord has not been reached as yet in France, nor does it exist among the Belgian steel companies for that matter. In France, the owner of an important works in the eastern area insisted on a larger allotment, claiming that its plant has not been entirely reconstructed to its pre-war proportions. A claim was made on a like ground by an equally important producer in the north region. However, the latest indications are that differences will be adjusted and that a basis on which the new organization can go forward will be decided on at a conference to be held Sept. 15.

New Cold Strip Plant at Cleveland

The Cleveland Cold Rolling Mills Co., Cleveland, has about completed a new plant for the manufacture of cold-rolled strip, .5 in. wide and narrower and 12-gage and lighter. The plant is equipped with a three-stand 8-in. mill, a 9-in. slitting machine and a continuous cleaning machine. The mill is driven by a 150-hp. motor. The mill equipment was built by the Pioneer Machine & Engineering Co., Cleveland. The plant occupies a building, 36 x 64 ft., on a 6-acre site on Smith Road off Brook Park Road. The offices at present are at 3182 West 112th Street.

The company was recently incorporated with a capital stock of $50,000. M. Brink, who is president and manager, was formerly connected with the Cuyahoga works of the American Steel & Wire Co. and later with the Elyria Iron & Steel Co. More recently he was plant engineer of the Worcester, Mass., works of the Wickwire Spencer Steel Co. Homer Nichols, secretary and assistant manager, was recently superintendent of the cold rolling department of the Worcester plant of the Wickwire Spencer company. Ralph Nichols is vice-president.

Iron and Steel Markets

Stable Prices for Fourth Quarter

Development of New Business in Heavy Lines a Factor—Pipe and Tin Plate Shipments Slackening—Steel Corporation Operations Somewhat Less

CURRENT activities of manufacturing consumers and the continued high rate of rolling mill operations confirm the general expectation of early August that the month would depart but little from the remarkable performance of July.

Shipments from the mills have been well distributed over the full range of ultimate consumption, and the fact that meanwhile there has been no building up of mill stocks in the lighter lines in which such stocks are carried leads some producers to plan for several weeks more of the present scale of output.

The Steel Corporation's ingot output is again somewhat below 85 per cent, and there is some reduction in its blast furnace schedules in view of a recent accumulation of steel-making pig iron. In the Chicago district as a whole ingot production has fallen off slightly and is now 84 per cent. For the entire industry the ingot rate for August is likely to be somewhat less than 80 per cent.

The extent to which new business develops next month in the heavier lines, to take the place of July-August shipments, will be an important factor in the determination of the price situation for the fourth quarter.

As an indication that little change is likely is the fact that business has been taken for that delivery on the same basis as for the liberal bookings of late June and early July.

Pipe and tin plate shipments, which have been notably large for several months, are likely to show some slackening in the next 30 days. Tin mill operations are at 85 to 90 per cent of capacity. A fair amount of tin plate export business is ahead, and by another 60 days early 1927 supplies will begin to show in mill schedules.

Wire mills will open their books for the last quarter early in September, so that the trade will not be long in uncertainty as to recent reports of a new price.

Automobile builders have put out inquiries for sheets and cold rolled strip steel for part, and in some cases all, of the fourth quarter. What they develop as to the price trend will be closely watched.

The Pennsylvania Railroad has contracted for the rebuilding of 2000 steel hopper cars, requiring 15,000 to 20,000 tons of steel, and three roads have placed orders for a total of 50 locomotives. Rail buying on any scale is not looked for until October. At Chicago there is inquiry for 10,000 tons. The latest Canadian Pacific order taken by the Nova Scotia mill is for 25,000 tons.

A marked falling off in structural steel work up for bids is offset to some extent by a good total of awards for this time of year. Of 29,000 tons contracted for, the largest project was 5000 tons for a New York apartment building. A Chicago office building calls for 3200 tons. The Bethlehem Steel Corporation and the McClintic-Marshall Co. were low bidders on two Staten Island-New Jersey bridges for which award of 31,000 tons of steel is expected soon.

Bookings of fabricated structural steel in July are estimated at Washington at 216,550 tons (219,660 tons in June) and shipments were 265,350 tons, or 87 per cent of capacity. For seven months of this year bookings were 1,460,950 tons, compared with 1,391,750 tons in 1925 to July 31. Shipments in the same periods were 1,650,050 tons this year (12 per cent above bookings) and 1,534,150 tons last year.

Taking another index of activity, steel castings, July had bookings of 82,628 tons, or 21.5 per cent more than the 68,030 tons of June. Railroad buying, commonly the backbone of the steel casting industry, has been only moderate since Jan. 1, representing but 58 per cent of the capacity for railroad specialties, while in miscellaneous castings the orders were 78 per cent of capacity.

In New England foreign steel bars and structural shapes are giving domestic mills more competition. German shapes have been offered at Boston, duty paid, at $6 to $8 a ton below domestic prices.

Sheet steel sales in July by independent manufacturers were the largest since the 370,361 tons of November, 1925, totaling 352,414 tons. They were 68,095 tons ahead of June sales.

The pig iron market reflects uncertainty as to prices and as to the requirements of foundries in the fourth quarter. At Buffalo a sale of 10,000 tons of basic was made to a steel company. On the Atlantic seaboard German iron has again become a factor; but the enforcement of demurrage charges after 48 hours instead of 15 days as heretofore has introduced a new hazard in the handling of all foreign irons.

Heavy melting steel has been more active in the East and in the Pittsburgh district. The Pittsburgh market has been holding well up to the $18 level despite only moderate consumer interest. At the same time basic pig iron is available at $17.50 at Valley furnace.

For the tenth successive week THE IRON AGE composite price of finished steel stands at 2.431c. per lb., being about 1½ per cent above that of one year ago. For seven weeks the pig iron composite has been $19.46 per ton, or 2.1 per cent higher than a year ago.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 24, 1926	Aug. 17, 1926	July 27, 1926	Aug. 25, 1925
No. 2 fdy., Philadelphia	$21.76	$21.76	$21.76	$21.26
No. 2, Valley Furnace	17.50	17.50	17.50	18.50
No. 2, Southern, Cin'ti	24.19	24.19	24.19	22.55
No. 2, Birmingham	21.00	21.00	21.00	18.00
No. 2 foundry, Chicago*	21.00	21.00	21.00	20.50
Basic, del'd eastern Pa	21.00	21.00	21.00	20.50
Basic, Valley furnace	17.50	17.50	17.50	18.00
Valley Bessemer del. P'gh.	19.76	19.76	20.26	20.76
Malleable, Chicago*	21.00	21.00	21.00	20.50
Malleable, Valley	17.50	17.50	17.75	18.50
Gray forge, Pittsburgh	18.76	18.76	18.76	19.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	88.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	34.00	35.84
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	35.00
Forging billets, base, P'gh.	40.00	40.00	40.00	40.00
O.-h. billets, Phila	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.12
Iron bars, Chicago	2.00	2.00	2.00	1.90
Steel bars, Pittsburgh	2.00	2.00	2.00	1.90
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.24
Tank plates, Pittsburgh	1.90	1.90	1.90	1.80
Tank plates, Chicago	2.10	2.10	2.10	2.10
Tank plates, New York	2.24	2.24	2.24	2.14
Beams, Pittsburgh	2.00	2.00	2.00	1.90
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York	2.34	2.34	2.34	2.24
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

Sheets, Nails and Wire,	Aug. 24, 1926	Aug. 17, 1926	July 27, 1926	Aug. 25, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.10	3.10	3.10	3.15
Sheets, black, No. 28, Chicago dist. mill	3.25	3.25	3.25	3.30
Sheets, galv., No. 28, P'gh	4.25	4.25	4.20	4.20
Sheets, galv. No. 28, Chicago dist. mill	4.40	4.40	4.40	4.35
Sheets, blue, 9 & 10, P'gh	2.30	2.30	2.30	2.30
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.40	2.40
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.35
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.40
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$16.00	$16.00	$16.00	$17.50
Carwheels, Philadelphia	17.50	17.50	17.00	18.50
Heavy steel scrap, P'gh	17.50	17.50	17.00	19.00
Heavy steel scrap, Phila.	16.00	16.00	15.75	16.50
Heavy steel scrap, Ch'go	14.00	14.00	14.00	16.75
No. 1 cast, Pittsburgh	17.00	17.00	16.00	17.50
No. 1 cast, Philadelphia	18.00	17.50	17.00	18.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	18.00
No. 1 RR. wrot, Phila.	18.00	18.00	16.50	17.50
No. 1 RR. wrot, Ch'go (net)	13.50	13.50	13.50	16.75
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$2.90	$2.85	$3.25
Foundry coke, prompt	4.00	4.00	4.00	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.50	14.50	14.37½	15.00
Electrolytic copper, refinery	14.12½	14.25	14.12½	14.62½
Zinc, St. Louis	7.40	7.30	7.47½	7.65
Zinc, New York	7.80	7.65	7.82½	8.00
Lead, St. Louis	8.75	8.80	8.70	9.50
Lead, New York	8.90	8.90	8.90	9.70
Tin (Straits), New York	65.00	64.75	63.50	57.75
Antimony (Asiatic), N. Y.	16.00	16.75	16.00	17.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Steel Buying Shows Some Decline, But Ingot Output Remains at 85 Per Cent

PITTSBURGH, Aug. 24.—Expressions regarding the state of the market are somewhat more conservative than they have been during the past six weeks, with some loss of business actually noted as compared with last week in plates, shapes, bars and strips. But this has entailed no material reduction in plant operations, at least not by the independent companies, and more favorable weather conditions have made possible an increase in sheet and tin mill output. Ingot output in this and nearby districts is still close to 85 per cent of capacity, and it is probable that a number of companies will maintain their present rate of production for another month, even though there may be some recession in business, because the activity of the past two months has made impossible the rebuilding of mill stocks, which melted away rather rapidly when business began to improve about the middle of June.

Expectations as to the fourth quarter of the year are for a somewhat lighter demand and smaller plant engagement. Production for the year to date has averaged approximately 85 per cent of capacity, as against 80 per cent for all of last year, and as production has closely reflected consumption, the former is likely to be influenced by any change in the latter. The pressure for shipments of tin plate is expected to subside in the next 30 days, and the common belief is that there will not be quite the urgent call for pipe after next month that there has been for several months. There is the seasonal factor also in the demand for structural steel and to a degree in the sale of automobiles, with the attendant demand for the steel used in their manufacture.

Prices are still holding well for most products. Even the 3000-ton sale of steel bars in Detroit last week at 1.90c. seems to have passed without disturbance, because such a tonnage is recognized as calling for a preferential price. There is talk of higher prices on sheets and wire products, while some effort is being made to restore stability in cold-rolled strip prices. Automobile companies will be in the market in the next week or 10 days for their fourth quarter requirements of strips and this should provide the test.

The scrap market is holding well, notwithstanding a lack of interest on the part of consumers. The coke market is slightly stronger on spot tonnages, but shows a tendency in the other direction on future supplies, because the prices asked seem to have discouraged those who were recently interested. The pig iron market is very dull, and efforts to put it on a more profitable basis have not succeeded.

Pig Iron.—Consumers generally are so well covered or protected against their requirements for the next few months that they are not much interested in the market. The situation so far as prices are concerned still is two-sided. There are some producers who are unwilling to take any business at the prices that can

be obtained today, while others appear to be guided by the law of supply and demand. A local melter seeking 1500 tons of foundry iron for delivery over the remainder of the year has not yet closed, seemingly waiting for lower prices than $17.50, Valley furnace, for No. 2, while the inquiry of the Westinghouse Electric & Mfg. Co. for 2000 tons of foundry iron for its Cleveland plant is still pending. Meanwhile, there are occasional sales of small lots at $18, and even $18.50 is reported on some business. Bessemer iron has not figured in sales in the past week, but there was one sale of 1000 tons of basic iron to a Pittsburgh district steel company at $18.76, delivered, or at $17.50 at furnace, while an Ohio River steel maker recently closed for 3000 tons with another steel maker having a lower rate of freight to destination than from Valley furnaces. Price details are withheld. The Carnegie Steel Co. has taken off one of its Carrie furnaces, but has put on one of the Lucy furnaces. The latter makes ferromanganese and spiegeleisen.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$17.50 to $18.00
Bessemer	18.00 to 19.00
Gray forge	17.00 to 17.50
No. 2 foundry	17.50 to 18.00
No. 3 foundry	17.00 to 17.50
Malleable	17.50 to 18.50
Low phosphorus, copper free	27.50

Fluorspar.—Sales of gravel spar amounting to about 7500 tons have been made in this market recently, with more than half of that tonnage going to importers on account of price. Starting at $17.50 to $17.75, the price of foreign spar receded to $17 per net ton, Atlantic seaboard, duty paid, which, with a freight charge of $3.50 a ton, made a delivered price of $20.50, or $2.75 a ton below the delivered price of domestic material, based on $18 at the mines. It has been necessary for domestic producers to go to $17 at mines to get any business in this district. Offerings of foreign spar are large, particularly from England, and the declared valuations are so low as to indicate the possibility of penetration into centers that hitherto were considered to be outside the reach of imported material. With customs declarations of $9 to $10 per gross ton on gravel spar, there is an indicated duty paid value of around $15 per net ton. Cleveland consumers have been offered imported spar at $17, seaboard, which means a delivered price of approximately $21, against $22.25 on domestic material, based on $17 at mines. It is said that foreign spar can get into southern Ohio at a lower delivered price than now is asked by American producers. There is still a price of $18, mines, for small lots of 85 and 5 per cent domestic spar, but on large lots the market is $17, mines, for domestic and $17, seaboard, for imported material.

Refractories.—Manufacturers seem to think that prices should be higher on both fire clay and silica brick, but no definite action has been taken in that direction. Business is good, particularly in silica brick, orders for which rarely have been heavier than they are just now, because of the numerous by-product coke ovens under construction. It is said that present silica brick prices are too low, based on costs, and that on the same basis higher prices for fire clay brick are justified. Prices are given on page 573.

Ferroalloys.—Specifications against contracts for ferromanganese, spiegeleisen and ferrosilicon are coming along steadily, but there is little new business and none is looked for until consumers begin to estimate their 1927 requirements.

Semi-Finished Steel.—Steel manufacturers who buy their steel are getting ample supplies in shipments on contracts and have no such requirements that necessitate additional purchases. Open market transactions, consequently, are few.

Wire Products.—Consumption of nails and wire is usually good at this season and this year is no exception to the rule. As stocks in second hands have been kept down to a minimum, a good movement into the hands of ultimate users is reflected in demands upon the mills. A fair amount of woven fence business has resulted from the giving of spring datings and a liberal discount for early payment. The retailer who pays by Sept. 10 gets a discount of 5 per cent, which on $65 per ton is $3.25.

Tubular Goods.—The high rate of operation of lap-welded pipe furnaces is beginning to cut into the mill backlogs and delivery promises are beginning to shorten. Pressure for shipments of oil country goods is still strong, but the mills are meeting it better than they did last month. Line pipe orders are not clogging the mills as much as recently, and an increasing production of seamless casing and drill pipe is helping to ease the supply situation. At no time this year have the mills been much behind their orders for standard weight pipe, demand for which now is beginning to taper. There continues to be interest in the Amarillo-Kansas City pipe line project. This will be a gas line of 450 miles, taking 20-in. pipe. Besides those mentioned previously in connection with this line, Kansas City interests are reported to have made part payment on more than 58,000 acres in the Texas Panhandle, and that part of the contract calls for a beginning on a 20-in. line from Burnett Ranch to Kansas City. There is a fairly good demand for boiler tubes and rather more steadiness in prices of welded tubes than was true earlier in the year. It is said that 7 fives beyond the card is the minimum on carload lots of steel tubes and that for less-than-carloads sales are being made at 4 fives beyond the card. Seamless tubes are priced too low for welded tubes to sell well in competition. Discounts are given on page 571.

Sheets.—Prices are still inclined toward greater strength, because mills generally have fair-sized backlogs and are not so dependent upon current demands for operating schedules as they were five or six weeks ago. In this area there is good observance of 3.15c., base Pittsburgh, for black, 4.30c., base, for galvanized, and 2.30c., base, for blue annealed, and it is asserted that these prices, except on black sheets, are becoming

THE IRON AGE Composite Prices

Finished Steel

Aug. 24, 1926, 2.431c. Per Lb.

One week ago	2.431c.
One month ago	2.431c.
One year ago	2.396c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

Aug. 24, 1926, $19.46 Per Gross Ton

One week ago	$19.46
One month ago	19.46
One year ago	19.04
10-year pre-war average	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.15c. to 2.25c.
Del'd Cleveland	2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.34c.
C.i.f. Pacific ports	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb.	$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.	1.20

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.60c.
Strips, f.o.b. Cleveland mills	3.40c. to 3.60c.
Strips, delivered Chicago	3.90c.
Strips, f.o.b. Worcester mills	3.75c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$45.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.25c. to 2.30c.
Nos. 9 and 10, f.o.b. Ch'go dist. mill	2.40c.
Nos. 9 and 10, del'd Philadelphia	2.62c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.05c. to 3.15c.
No. 28, f.o.b. Ch'go dist. mill	3.25c.
No. 28, del'd Philadelphia	3.42c. to 3.47c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.20c. to 4.30c.
No. 28, f.o.b. Chicago dist. mill	4.40c.
No. 28, del'd Philadelphia	4.62c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.10c. to 3.15c.
No. 28, f.o.b. Chicago dist. mill	3.25c.

Automobile Body Sheets

No. 28, f.o.b. Pittsburgh	4.20c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.65c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers	Base Per 100 Lb.
2100* (1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300 (3½% Nickel)	4.40 to 4.50
2500 (5% Nickel)	5.50 to 5.65
3100 (Nickel Chromium)	3.40 to 3.55
3200 (Nickel Chromium)	5.00 to 5.25
3300 (Nickel Chromium)	7.00 to 7.25
3400 (Nickel Chromium)	6.25 to 6.50
5100 (Chromium Steel)	3.40 to 3.50
5200* (Chromium Steel)	7.00 to 7.50
6100 (Chrom. Vanadium bars)	4.90
6100 (Chrom. Vanad. spring steel)	5.80
9250 (Silicon Manganese spring steel)	3.29 to 3.35
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.50
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. Per billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$34.00 to 35.00
Light (from rail steel), f.o.b. mill	32.00 to 33.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.00
Spikes, ½ in. and smaller	2.90 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes	3.90 to 4.50
Tie plates, steel	2.35 to 2.85
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+30
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	23	11
¾	60	43½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	24	11
7 and 8	56	43½	3 to 6	28	18
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	⅛ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	13
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	37	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1⅜ in.	52	3¼ to 3½ in.	47
1¾ in.	56	4 in.	50
2 to 2¼ in.	51	4½, 5 and 6 in.	45
2½ to 2¾ in.	50		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $2 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.20%, base	55
Carbon, 0.20% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

more general in other districts. On black sheets, 3.10c. appears to be the minimum of Pittsburgh district mills. Long ternes have eased off to 4.65c., base. Production was helped by cooler weather last week, and operations now range from 80 to 85 per cent. Prices are given on page 571.

Tin Plate.—There is still pressure for tin plate in the packer can sizes, but weather conditions have been more favorable to plant operations and the mills are meeting their obligations better. The packing season has only about a month or six weeks to run, and pressure for shipments will be lighter from now on. Mill operations remain at between 85 and 90 per cent of physical capacity. There should not be much recession from that rate during the remainder of the year, since there is still a good deal of export business and early 1927 supplies will begin to get into the schedules in the next 60 days.

Cold-Finished Steel Bars and Shafting.—Demands are not taxing productive capacity, but they are constant enough to keep the market fairly active and producers have adjusted themselves to short-range buying. Prices are steady.

Hot-Rolled Flats.—Demands are individually small, but they are fairly numerous and provide a reasonably full engagement of mill capacity, especially as most of the business calls for early shipment. Prices are steady.

Cold-Rolled Strips.—Large-lot business is lacking, most of the buying being in small tonnages, on which the ruling price is 3.60c., base Pittsburgh. Competition for business, particularly that originating from what are regarded as desirable consuming connections, is still sharp.

Steel and Iron Bars.—Specifications are still good in steel bars, although the volume of the past week has been somewhat lighter with some local mills than the week before. New business does not amount to much, because so many consumers are covered by contracts covering their requirements for this quarter. The ordinary tonnage price is 2c., base Pittsburgh, with 2.10c. occasionally obtainable on stock orders. There have been some rather good releases lately on reinforcing bars rolled from billets. Rail steel bars are moving well, but competition is keen and prices are low. Iron bars are dull and barely steady.

Structural Steel.—Specifications for large structural shapes are holding up fairly well but are not in quite so heavy volume as recently. There seems to be plenty of structural work, but it runs largely to small projects on which investors are anxious for erection before the advent of cold weather, and none of the shops here seems to be in a position to make the deliveries necessary to secure the awards. Prices hold at 2c., base Pittsburgh, for plain material on current business.

Plates.—Prices are well maintained at 1.90c., base Pittsburgh, but it is not the high rate of mill engagement so much as the undesirability of business at a lower price that accounts for the firmness of the market.

Bolts, Nuts and Rivets.—Makers of bolts and nuts in this district do not note much variation in the size of their orders or in the general character of demand, which is still for small lots at frequent intervals. Prices are steady. Rivets are moving on contracts at full quotations, but on current business there are deviations, notably on car rivets, individual orders for which are usually large and carry extras for size sufficient to permit some shading of base prices. Prices and discounts are given on page 573.

Coke and Coal.—There is not much pressure to sell spot tonnages of furnace coke, and while demand is only moderately active, it is sufficient to sustain prices at about 10c. per ton higher than a week ago. The effort to establish furnace coke for shipment over the remainder of the year at $3.50 per net ton at ovens has not yet been successful. One of the recent inquiries has disappeared from the market, and the other steel company which recently inquired for 15,000 tons a month over the last quarter has indicated an intention to buy the necessary pig iron rather than start a blast furnace on coke at $3.50. The coke market derives some strength from the fact that the larger producers are well obligated on coke or coal for some time ahead, and starting up of ovens by other producers is checked by a seasonal shortage of men and by some fair-sized export orders for coal. Suggestions of an early ending of the British coal strike have not affected the export demand for coal, and it is believed that there will continue to be a demand, even after the British strike is settled, from South America and European points which lately have been drawing on American coal. Foundry coke is holding at recent prices.

Old Material.—The market on the steel works grades of scrap is holding well, despite only moderate consumer interest. An Ohio River steel company has been seeking prices on heavy steel scrap in the past few days and has been quoted $18.25 and $18.50. A small lot has been sold at $18 to a Pittsburgh district mill, and at Youngstown that price was paid on some yard scrap. There are now open orders at the latter point, and the sale does not mean that Pittsburgh necessarily is shut off from Western supplies. Dealers here are still able to pick up small lots of heavy melting steel at $17.50, but it is admitted that the offerings are moderate at that price. Compressed and bundled sheet scrap is firmer because of some high-priced sales in the Youngstown district. On heavy breakable cast $16 is all that is offered by the principal consumer in this district. There is a wide spread in prices of rolling rails. As against recent sales at $17.50 to $18 to mills with easy specifications, there has been business at $19 to $19.50 to more exacting consumers.

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.00c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.00c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.50 to	$18.00
No. 1 cast, cupola size	17.00 to	17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.50 to	19.50
Compressed sheet steel	16.50 to	17.00
Bundled sheets, sides and ends	15.50 to	16.00
Railroad knuckles and couplers	19.50 to	20.00
Railroad coil and leaf springs	19.50 to	20.00
Low phosphorus blooms and billet ends	21.00 to	21.50
Low phosphorus mill plates	20.50 to	21.00
Low phosphorus, light grade	18.00 to	18.50
Low phosphorus punchings	18.50 to	19.00
Steel car axles	22.00 to	22.50
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	19.50 to	20.00
Machine shop turnings	12.00 to	12.50
Short shoveling turnings	13.50 to	14.00
Sheet bar crops	18.00 to	19.00
Heavy steel axle turnings	15.50 to	16.00
Short mixed borings and turnings	12.00 to	12.50
Heavy breakable cast	16.00 to	16.50
Cast iron borings	12.00 to	12.50
No. 1 railroad wrought	13.50 to	14.00
No. 2 railroad wrought	17.50 to	18.00
Railroad or automobile malleable scrap	18.00 to	18.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F. o. b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	40c. to 42c.
Manganese ore, high grade, nominal	35c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.75 to $12.50
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.50
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	50c. to 55c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$3.00 to $3.10
Foundry, f.o.b. Connellsville prompt	4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.00
Foundry, by-product, Newark or Jersey City, delivered	9.59 to 10.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to $1.75
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines	1.85 to 2.00
Steam slack, f.o.b. W. Pa. mines	1.10 to 1.20
Gas slack, f.o.b. W. Pa. mines	1.20 to 1.30

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$85.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	83.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00 to $87.50
75%	145.00 to 150.00

	Per Gross Ton Furnace		*Per Gross Ton Furnace*
10%	$35.00	12%	$39.00
11%	37.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
10%	$33.00	12%	$37.00
11%	35.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
6%	$25.50	10%	$31.00
7%	26.50	11%	33.00
8%	27.50	12%	35.00
9%	29.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.00 to $18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.00 to $17.50
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$38.00 to $40.00
Maryland	43.00 to 46.00	38.00 to 40.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	33.00 to 40.00
Kentucky	40.00 to 43.00	33.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 38.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to 7.50	

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	40.00
Birmingham	50.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$45.00
Grain magnesite, f.ob. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00 to $46.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	60, 10 and 5
⅞ in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	60, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	60, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
½-in.	$9.44	$9.44	⅝-in.	$2.35	$2.40
⅝-in.	0.515	0.515	¾-in.	3.00	3.00
¾-in.	0.62	0.66	1-in.	5.65	5.90
⅞-in.	0.79	0.90	1⅛-in.	8.90	8.90
1-in.	1.01	1.05	1¼-in.	12.60	13.10
1⅛-in.	1.28	1.42	1⅜-in.	18.35	18.35
1¼-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	$2.60 to 2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70, 10 and 5 to 70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	60 and 10
Milled standard set screws, case hardened,	60 and 5
Milled headless set screws, cut thread	60
Upset hex. head cap screws, U. S. S. thread,	55, 10 and 10
Upset hex. cap screws, S.A.E. thread,	60, 10 and 10
Upset set screws	60, 10 and 5
Milled studs	70 and 5

Chicago

Steel Buying Shows Slight Recession—Ingot Output at 84 Per Cent

CHICAGO, Aug. 24.—The favorable industrial situation among consumers of finished steel is well maintained, and the market, as a whole, is steady. Users are now turning their attention to fourth quarter requirements, and inquiries for that period are being received in good volume. Local mills have opened their books for the final three months of this year, and quotations are unchanged at 2.10c., base Chicago, for plates, shapes and bars. A falling off in rail mill operations during the last few weeks has resulted in a reduction in ingot production to about 84 per cent of capacity. Other mills, however, continue to produce at an undiminished rate.

Specifications are about equal to shipments, but new buying for the week shows a slight recession from the volume of the previous seven days. Both in sales and specifications August to date is practically on a parity with the same period in July, the slight difference being in favor of July. Inquiries for rails are more numerous, and the railroads are showing considerable interest in track fastenings. Several sizable orders for rolled steel wheels have been booked by a Chicago maker.

Warehouse stocks are well balanced, and sales are running equal to those of July of this year and of August, 1925.

Pig Iron.—Shipments of Northern iron are running slightly ahead of the average for July, and producers now feel that August will compare favorably with any month so far this year. Spot buying is still fairly active, but many users who had not covered for the remainder of the year are now turning their attention to fourth quarter requirements. Contracts for the final period are progressing steadily and are being taken at $21, local furnace, for Northern No. 2 foundry. Shipments are about equal to the make, and there appears to be no immediate prospect of a change in furnace operations. With one furnace on at Mayville, shipments from that source are exceeding production, but sizable stocks had been built up there earlier in the year when two stacks were in blast. A Milwaukee user closed during the week for 2000 tons of foundry and malleable iron, 300 tons of charcoal iron and 100 tons of 10 per cent silvery.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	$21.00 to 21.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01
Southern No. 2 (barge and rail)	25.18
Low phos., sil. 1 to 2 per cent, copper free	29.50 to 30.00
Silvery, sil. 8 per cent	32.29
Bessemer ferrosilicon, 14 to 15 per cent	45.79

Ferroalloys.—Specifications for 50 per cent ferrosilicon are in good volume, and quotations are at $85, delivered. Ferromanganese is quiet. Domestic spiegeleisen is practically off the local market, and users are being supplied with foreign material averaging 20 per cent, which is quoted at $34, seaboard, or $41.56, delivered.

We quote 80 per cent ferromanganese, $95.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.56, delivered Chicago.

Plates.—The demand for plates is holding up well, although present requirements of the car building industry are light. The building industry in the Chicago district shows little change, and the oil trade is actively placing tank tonnages. Mills this week have booked 5000 tons of steel for oil tanks and 3000 tons for a gas holder. No action has been taken on the inquiry for 2000 cars from the American Refrigerator Transit Co., and the Chicago Great Western is revising its specifications on 500 cars. The Chicago, North Shore & Milwaukee is in the market for four caboose cars, and the Union Pacific and the Chicago & North Western are inquiring for combination baggage and sleeping cars.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Sheets.—Demand for sheets continues to expand, and mills in this territory, which are operating at close to capacity, are promising no better than five to six weeks' delivery. Contracts made for the second quarter which were extended into the present quarter have largely been taken out, and although there is a substantial inquiry for the last three months of this year, mills hesitate to take that business at present prices. Transactions are for the most part for the best delivery obtainable from mills. Although prices are firmer, they remain unchanged.

Chicago delivered prices from mill are 3.30c. for No. 28 black; 2.45c. for No. 10 blue annealed; 4.45c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Material.—The outstanding fabricating award in Chicago this week is the Mather Building, requiring 3200 tons. Plans for the State Bank of Chicago have been delayed, and it will take about seven weeks before specifications are completed. It is estimated that this project will call for 5000 tons of steel. On the whole, the building industry in this territory remains active. Shops in the immediate vicinity of Chicago are well supplied with work, and prices obtained during the past month or six weeks are well above what they were earlier in the year. Shops in Iowa are reported as having about three months of work ahead, although at the moment there are only a few small tonnages up for figures.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bars.—Soft steel bars continue in good demand, and specifications are being received at the average of the past four or five weeks. New business, as well as specifications, is approximately equal to shipments. Automobile plants and makers of cold-drawn products are taking large tonnages of billet steel bars. Soft steel bars are steady at 2.10c., Chicago, and iron bars are unchanged at 2c., Chicago. Specifications for bar iron are slightly more liberal, particularly from farm implement makers and the railroads. There is no recession in the demand for alloy steel bars, and prices are unchanged. Chicago makers are operating practically at capacity. The rail steel bar mill of the Inland Steel Co., which was to have been closed down last week to be changed from steam to electric drive, was kept in operation this week because of a delay in delivery of the electric motors. The program now is to close the mill this week and have it in operation again within seven to 10 days. Rail steel bar mills have booked large tonnages of reinforcing bars within the past 30 days, and there is still a substantial tonnage pending. Specifications so far in August are well above what they were in the corresponding period of July and show a slight gain compared with August last year. Both specifications and production are about equal to shipments. The demand for fence posts is unusually brisk for this season, and fall business is getting under way earlier than was the case in 1925. Rail steel bars are firm at 2c., Chicago.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Cast Iron Pipe.—Inquiries and sales are still in good volume, and, on the whole, makers are oversold from 30 days on some sizes to 60 and 90 days on others. In Chicago orders from the regular trade are fairly liberal, and smaller public lettings are holding up well. Locally prices for 6-in. and larger diameters range from $40 to $42, Birmingham, or $48.20 to $50.20, delivered Chicago. Competition in Milwaukee, however, has brought out a lower price. The Glamorgan Pipe & Foundry Co. is low bidder on 500 tons of 8-in. Class C pipe for Milwaukee, with a tender of $47.40, delivered

Milwaukee, or $38.90, Birmingham. The National Cast Iron Pipe Co. has taken 500 tons of 4, 6 and 8-in. Class B pipe for Waterville, Ohio, and 200 tons of 6, 8 and 12-in. Class B pipe out of an original inquiry for 1000 tons from Cuyahoga Falls, Ohio. The United States Cast Iron Pipe & Foundry Co. has booked 550 tons of 6, 8, 12 and 16-in. Class B pipe for Akron, Ohio. A sanitary job in Lucas County, Ohio, will require 700 tons of 6 and 8-in. Class B pipe, and Troy, Ohio, will close Sept. 7 on about 100 tons of 6, 8 and 12-in. Class B.

We quote per net ton, delivered, Chicago, as follows: Water pipe, 4-in., $52.20 to $54.20; 6-in. and over, $48.20 to $50.20; Class A and gas pipe, $4 extra.

Rails and Track Supplies.—There are now before the local trade inquiries for over 10,000 tons of standard-section rails. Of this amount 5000 tons is from one of the trunk lines entering Chicago, and the remainder is from miscellaneous sources in this territory. Orders for rails this week total 1500 tons. The demand for track fastenings is in good volume for this time of the year, and the price of steel tie plates is steady at $2.35 per 100 lb., mill. Rail mill operations in the Chicago district vary somewhat, but the general average is low.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c. mill; angle bars, 2.75c. mill.

Bolts, Nuts and Rivets.—Large rivets are weak, ranging from $2.60 to $2.75, base, per 100 lb., Chicago. Demand for small rivets is holding up well, with discounts steady. Specifications for stove bolts are in good volume. Spot sales of these products are light, however, it being evident that users are well covered by contracts. Specifications from practically all sources have improved within the last 10 days, and there are indications that the farm implement trade is estimating the stocks it will require during the fall. The preparation of fourth quarter contracts will probably get under way shortly after Sept. 1.

Wire Products.—A substantial amount of fourth quarter inquiry is making its appearance, and mills expect to open their books for that period early in September. Buying by the jobbing trade keeps up at the general average of the previous two weeks. Specifications from the manufacturing trade are showing slight improvement. The demand for woven wire fence has been stimulated by the recent announcement of spring terms. For mill prices see page 571.

Reinforcing Bars.—Competition is no less keen, although awards have tapered off both in number and size. Attractive tonnages are still being taken at 2.25c., Chicago warehouse, and 2.60c. represents about the top of the present market. There has been a noticeable falling off in the number of small projects, such as are ordinarily represented by medium and small-sized apartment buildings. Fresh inquiry is in fair volume, and although architects are busy, plans and specifications are slow in reaching estimating offices of bar companies. Shipments of billet steel reinforcing bars from Chicago warehouses are in good volume. New projects and recent contracts are shown on page 563.

Coke.—Shipments of by-product foundry coke are heavy, and quotations are $9.75, ovens, or $10.25, delivered in the Chicago switching district. A number of users who had not made commitments for the fourth quarter are now entering their contracts for that period. Domestic coke will be advanced 25c. a ton Sept. 1.

Old Material.—Consumers are taking little interest in the market, and the only strength shown is due to speculative activities and efforts of dealers to cover previous contracts. Consumers seem disinclined to pay more than $14.50 for heavy melting steel, but dealers are trading in this grade at $14.75 per gross ton, delivered. A user of rerolling rails has taken 700 tons at $17.50, delivered. The demand for borings and short shoveling turnings is fair, and users are willing to pay 25c. a ton above the market of a week ago. Consumers are offering $18 per net ton, delivered, for steel axles, but this grade is hard to obtain, and dealers are holding it in their yards in anticipation of higher prices. Railroad scrap is moving freely, and prices paid are usually high. The Santa Fe sold 1200 tons for $17.50 per gross ton on track, or $18, delivered. A large user of heavy melting steel continues to reject practically everything except railroad scrap, and consequently dealers are not able to get rid of the less desirable grades. Railroad lists for the week are lighter than during the early part of the summer. The St. Paul is offering 2500 tons; the Burlington, 300 tons, and the Chicago, Indianapolis & Western, 250 tons.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items, except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Heavy melting steel	$14.00 to	$14.50
Frogs, switches and guards, cut apart, and miscellaneous rails	16.00 to	16.50
Shoveling steel	14.00 to	14.50
Hydraulic compressed sheets	12.50 to	13.00
Drop forge flashings	9.50 to	10.00
Forged cast and rolled steel car wheels	18.00 to	18.50
Railroad tires, charging box size	18.50 to	19.00
Railroad leaf springs, cut apart	18.50 to	19.00
Steel couplers and knuckles	17.50 to	18.00
Coil springs	18.50 to	19.00
Low phos. punchings	17.00 to	17.50
Axle turnings, foundry grade	14.50 to	15.00
Axle turnings, blast fur. grade	12.50 to	13.00
Relaying rails, 56 to 60 lb.	25.50 to	26.50
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Rerolling rails	17.00 to	17.50
Steel rails, less than 3 ft.	17.50 to	18.00
Iron rails	14.50 to	15.00
Cast iron borings	11.50 to	12.00
Short shoveling turnings	11.50 to	12.00
Machine shop turnings	7.50 to	8.00
Railroad malleable	17.75 to	18.25
Agricultural malleable	15.50 to	16.00
Angle bars, steel	16.25 to	16.75
Cast iron car wheels	16.00 to	16.50
Per Net Ton		
No. 1 machinery cast	17.00 to	17.50
No. 1 railroad cast	16.25 to	16.75
No. 1 agricultural cast	16.25 to	16.75
Stove plate	14.50 to	15.00
Grate bars	14.25 to	14.75
Brake shoes	13.75 to	14.25
Iron angle and splice bars	14.00 to	14.50
Iron arch bars and transoms	20.00 to	20.50
Iron car axles	24.00 to	24.50
Steel car axles	17.50 to	18.00
No. 1 railroad wrought	13.50 to	14.00
No. 2 railroad wrought	13.50 to	13.00
No. 1 busheling	11.50 to	12.00
No. 2 busheling	7.50 to	8.00
Locomotive tires, smooth	17.00 to	17.50
Pipes and flues	10.00 to	10.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.25c. to 2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
	4.15c.
Hoops	3.65c.
Bands	4.10c.
No. 28 black sheets	3.50c.
No. 10 blue annealed sheets	5.25c.
No. 28 galvanized sheets	3.55c.
Standard railroad spikes	4.55c.
Track bolts	3.50c.
Structural rivets	3.70c.
Boiler rivets	
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base, per keg	3.05
Cement coated nails, base, per keg	3.05

It is stated by the Central Alloy Steel Corporation, Massillon, Ohio, that the blast furnace which has been under construction at that plant will be blown in on Sept. 23.

Cleveland

Steel Specifications Heavy But New Business Light—Heavy Melting Up $1

CLEVELAND, Aug. 24.—Specifications for finished steel continue heavy, and the expectation that the tonnage entered during August will be about equal to that booked in July will probably be realized. The business is well distributed among the various consuming industries, and practically all buyers are specifying the full monthly quotas of their contracts. However, not much new business is coming out. Some feel that there is little chance for a lull, now that the summer is so well along, and that business will remain good throughout the fall months. On the other hand, others believe that there will be some slowing down in September, because of the heavy demand during July and August.

Metal-working industries in this territory are reported to be operating on an average of 70 to 75 per cent of capacity. The automotive industry is going ahead at recent production schedules, and the question is now being raised as to whether the fall and early winter demand for cars will be sufficient to keep automobile plants on their present production basis. Some inquiry has come from motor car builders for sheets and cold-rolled strip for well into or through the fourth quarter, but mills have not yet named fourth quarter prices.

However, a Cleveland mill has opened its books for plates for the fourth quarter at present prices and has taken some business for that delivery. Plates in small lots for early shipment are in good demand. Prices are holding firm in this market at 2c., Pittsburgh, for steel bars and structural material and at 1.90c. for plates. Welded steel boiler tubes are irregular, with quotations reported at 8 fives extra beyond the regular discount.

Iron Ore.—Ore has been moving forward this month at close to a record rate, and shipments up to this week indicate a total movement for the month of about 10,500,000 tons. The largest amount of ore shipped in any month was 10,659,203 tons in July, 1918. Many boats are going up the lakes light, which tends to make faster round trips in handling ore.

Pig Iron.—Inquiry showed some improvement the past week, but sales by Cleveland interests were about the same as during the previous week, amounting to 15,000 tons. The increase in demand was largely in western Ohio and in Indiana, where two or three 1000-ton lots were placed. In Michigan the market is quiet. One Mansfield, Ohio, consumer bought 100 tons of foundry iron, and another closed for 500 tons. The inquiry for 2000 tons from the Westinghouse Electric & Mfg. Co. for its Cleveland plant is reported to be still pending. Cleveland furnaces are understood to have quoted their regular price of $19.50, delivered, against this inquiry. A Cleveland producer sold 500 tons of foundry iron to a western Ohio consumer at $18.50, furnace, but $18 is still being quoted for outside shipments to points where competition is keen. Outside of Michigan, where the market is holding at $19.50, furnace, range of prices from Lake furnaces is from $18 to $19, with the result that they are losing business to those Valley producers who are still quoting $17.50, since the lower Valley price more than overcomes the freight disadvantage of Valley furnaces for shipment to some points in central and western Ohio.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$17.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25	19.50
Southern fdy., sil. 1.75 to 2.25	27.01
Malleable	19.50
Ohio silvery, 8 per cent	30.52
Standard low phos., Valley furnace	27.50

Semi-Finished Steel.—The increased production of sheets is being reflected in the heavier demand for sheet bars, and some small-lot sales are being made to supplement contracts. The McKinney Steel Co. has started another open-hearth furnace and is now operating 11 out of 14. The market is firm at $36, Cleveland and Youngstown, for sheet bars and $35 for slabs and large billets.

Iron Ore Consumption.—During July there was consumed 4,786,634 tons of Lake Superior ore, as compared with 3,842,351 tons in July last year and with 4,834,126 tons during June. The decrease as compared with the previous month was 47,492 tons. The total amount of ore at docks and in furnace yards Aug. 1 was 26,691,229 tons, as compared with 30,332,260 tons on the same date a year ago. On July 31 there were 185 furnaces using Lake ore in blast, a decrease of four for the month.

Sheets.—Two of the Detroit automobile companies are inquiring for round lots of sheets for the fourth quarter, evidently being brought into the market by the stiffening of prices. While mills are not yet naming fourth quarter prices, some consumers have been able to place contracts that will be carried over into that quarter. Sales, which were stimulated for a number of weeks by the low prices, have fallen off materially, as most consumers are now under contract. Some of the mills are not getting the specifications they expected against some of their low-priced July contracts. However, specifications generally have been coming out in good volume, and many of the mills are filled up for 30 days or longer. Because of the firmer price stand taken by several of the leading producers, the low prices that have appeared recently on black and blue annealed sheets are no longer common. However, black sheets can still be bought at 3c., Pittsburgh, although the more common range is 3.10c. to 3.15c. Most mills are holding to 2.30c. on blue annealed, but 2.25c. can still be done. Galvanized sheets have not got above a minimum of 4.20c., although some mills are asking 4.40c.

Strip Steel.—Cold-rolled strip mills have fair order books but are not sold very far ahead. The common price range is from 3.50c. to 3.60c., Cleveland and Pittsburgh, but round-lot business was taken recently at 3.40c. and probably lower, and the market apparently has not strengthened. Hot-rolled strip steel is firm at regular quotations.

Reinforcing Bars.—Local inquiries for two jobs requiring 650 tons came out during the week. Small lots are in good demand. The market lacks strength.

Bolts, Nuts and Rivets.—Specifications are good for bolts and nuts, and some of the makers report an improvement in orders from the railroads. Prices are firm. Rivet business is holding up well, in fact better than was expected for August. Although shading is reported in the Pittsburgh territory, the leading local producer continues to hold to $2.60 per 100 lb. for large rivets.

Coke.—The ruling price of $7.50, Painesville, for Ohio by-product foundry coke has been reaffirmed for September shipments. Connellsville foundry coke is unchanged at $4 to $5.25, ovens, for standard brands. Sales are light. Owing to increased coke consumption, a Valley producer is not offering by-product domestic coke in the egg size, but is quoting nut coke at $4.75, ovens.

Old Material.—Recent activity and higher prices in the Valley district have caused a strengthening in the

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	3.81c. to 3.85c.
No. 10 blue annealed sheets	3.15c.
No. 28 galvanized sheets	4.70c. to 5.00c.
No. 9 annealed wire, per 100 lb.	$3.00
No. 9 galvanized wire, per 100 lb.	3.45
Common wire nails, base, per keg	3.00

market and an advance in Cleveland prices on several grades. Heavy melting steel has been marked up $1 a ton and blast furnace scrap 50c. a ton. These are the only grades that are active locally. Dealers are paying $16 to $16.50 for heavy melting steel and $12.50 to $13 for borings and turnings to fill old orders. None of the Cleveland mills has bought any scrap for several weeks. With heavy melting steel scrap 50c. a ton higher than basic pig iron in the Valley district, it is felt by some that present scrap prices are too high and cannot be maintained.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel	$16.00 to $16.50
Rails for rolling	16.25 to 16.50
Rails under 3 ft.	18.00 to 18.50
Low phosphorus billet, bloom and slab crops	19.00 to 19.50
Low phosphorus sheet bar crops.	18.50 to 19.00
Low phosphorus plate scrap	18.50 to 19.00
Low phosphorus forging crops	16.75 to 17.25
Cast iron borings	12.50 to 13.00
Machine shop turnings	12.00 to 12.50
Mixed borings and short turnings	12.50 to 13.00
Compressed sheet steel	14.00 to 14.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	13.75 to 14.25
Railroad malleable	18.00 to 18.50
Light bundled sheet stampings	11.25 to 11.75
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	12.50 to 13.00
No. 2 busheling	12.00 to 12.50
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	12.50 to 13.00
Pipes and flues	10.00 to 10.50

New York

German Bid Low on Cast Pipe—Steel Bookings Fall Off Slightly

NEW YORK, Aug. 24.—Sales of pig iron in this district during the past week are estimated at 9000 tons. The largest transaction reported was the purchase of 1000 tons of foundry iron by Abendroth Brothers, Port Chester, N. Y. This business is said to have been placed with a New York State furnace for barge delivery. The Singer Mfg. Co., New York, is sounding out the market, but otherwise there are few new inquiries of any size. Several melters, however, who were believed to have covered their entire requirements for the remainder of the year are inquiring for additional tonnages for fourth quarter. Among such inquiries is one for 1000 tons of various grades of foundry, another for 500 tons of No. 1X and a third for 300 tons of foundry. The General Electric Co., Schenectady, N. Y., is in the market for 100 tons of No. 2 plain for Bayway, N. J. Prices on domestic irons remain substantially unchanged. A Buffalo steel company which recently put out a blast furnace for repairs is reported to have bought 10,000 tons of basic iron from a producer of merchant iron. German foundry iron is generally quoted at $21, base, duty paid port of entry, but sales have been made at 25c. to 50c. below that price, suggesting that importers still have iron due them which was bought before the recent advances by Continental producers. At Philadelphia the operations of importers will be further limited by a new demurrage rule, effective Aug. 25, which reduces the free time on imported iron from 15 days to 48 hr. This materially increases the risk in ordering iron on consignment which has not been sold.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25	$21.89 to $23.02
East Pa. No. 2X fdy., sil. 2.25 to 2.75	22.39 to 23.52
East Pa. No. 1X fdy., sil. 2.75 to 3.25	22.89 to 24.02
Buffalo fdy., sil. 1.75 to 2.25 (all rail)	22.91 to 23.91
No. 2 plain fdy., sil. 1.75 to 2.25 (by barge, del'd alongside in lighterage limits, N. Y. and Brooklyn)	20.00 to 21.00
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.54 to 28.04

Ferroalloys.—With little 19 to 21 per cent spiegeleisen obtainable from domestic sources, imported material is offered at $34, duty paid port of entry. There is little demand, however, because most consumers are covered on contract for the remainder of the year. No activity is reported in ferromanganese, with prices unchanged.

Reinforcing Bars.—The Truscon Steel Co. will supply 1000 tons of reinforcing bars for a United States Veterans' Hospital at Northport, L. I., and it is reported that the contract will be let this week on a warehouse in Jersey City requiring 3500 tons. Other awards are small, and no important new inquiries have come out. Prices continue to hold to the schedule quoted last week.

Finished Steel.—New business has shown a slight falling off in the past week in all of the major steel products, but specifications against contracts are coming in at a rate about equal to that of previous weeks of July and August. Some new projects involving good-sized tonnage, such as in building construction, are being held up on account of the absence of executives on vacations, and the trade looks forward to Labor Day as the time when more active consideration

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ⅛ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
⅛-in. butt	46	29
¼-in. butt	51	37
⅜-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
⅛-in. butt	4	+19
¼-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	8	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass†

	Per Lb.
Nos. 18 to 20	4.20c.
No. 22 and 24	4.25c.
No. 26	4.40c.
No. 28*	4.50c.
No. 30	4.70c.

Sheets, Galvanized†

	Per Lb.
No. 14	4.60c.
No. 16	4.75c.
Nos. 18 and 20	4.90c.
Nos. 22 and 24	5.05c.
No. 26	5.20c.
No. 28*	5.50c.
No. 30	6.00c.

*No. 28 and lighter, 24 in. wide, 20c. higher per 100 lb.

†Lots of 50 bundles 25c. per 100 lb. less.

of such work will be undertaken. The price situation is unchanged, with sheets continuing to show the firmer tendency that was in evidence a week or two ago. Quotations on black sheets below 3.10c., Pittsburgh, are no longer reported, and some mills are holding for 3.15c. On galvanized sheets 4.30c. is the usual quotation, although one mill bid 4.22½c., Pittsburgh, on about a carload for the Lake Denmark arsenal in New Jersey, a Government specification. Blue annealed sheets are firmer at 2.30c., Pittsburgh. There are no indications of shading of 1.90c., Pittsburgh, on plates, even universals going at that figure, while 2c. on structural shapes and bars is the usual quotation. The letting of a contract by the Pennsylvania Railroad for the rebuilding of 2000 steel cars, with probably more to follow, is the most hopeful indication the car builders have had in weeks. There has been better buying of locomotives. The Bethlehem Steel Corporation and the McClintic-Marshall Co. were low bidders on two bridges over the Kill van Kull from Staten Island to New Jersey, involving a total of about 31,000 tons of fabricated steel. The largest local structural steel award of the week was 5000 tons for an apartment.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.34c.; bar iron, 2.24c.

Cast Iron Pipe.—Few new inquiries are in the market except for lots of a few tons to complete current installations or for special purposes. The Nassau & Suffolk Lighting Co. is reported in the market for nine miles of 20-in. and 24-in. gas pipe (3000 to 4000 tons) for Hempstead, L. I. On the 10,000 tons of cast iron pipe with fittings, valves and fire hydrants for the city of New York, bids on which were opened Aug. 18, E. D. Giberson & Co., 40 Rector Street, New York, representing the Gelsenkirchen Bergwerks, Düsseldorf, Germany, were the low bidders on the nine of the 12 sections for which they submitted bids. On Sections 1 to 4, which covered the 10,000 tons of pipe, the German bid was low at $48.75 per ton, delivered, for Sections 1 and 4, and $49 per ton for Sections 2 and 3. The lowest American bids were $51.50 on Section 1 by the Donaldson Iron Co., $51.90 per ton on Section 2 by the Warren Foundry & Pipe Co., $52 on Section 3 by the Florence Pipe Foundry & Machine Co., and $51.85 on Section 4 by the United States Cast Iron Pipe & Foundry Co. On Sections 5, 6 and 7, calling for special castings the German bid was $111.25 per ton, with the lowest American bids, $123 by the Talladega Foundry & Machine Co., $124 by the Florence Pipe Foundry & Machine Co. and $125.90 by the Warren Foundry & Pipe Co. respectively. On Sections 8 and 9, valve box castings, the German bid was $53.75 and $57.75, and that of the Frederick Iron & Steel Co., Frederick, Md., was $68.44 and $69.24 per ton. Sections 10, 11, 12, 13 and 14 called for valves and fire hydrants, on which the Chapman Valve Mfg. Co., A. P. Smith Mfg. Co. and the Feil Mfg. Co. were low bidders.

We quote pressure pipe per net ton, f.o.b. New York fn carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Coke.—The market on standard foundry grade is quiet, with prices unaltered at $4 to $5 per ton, Connellsville, but furnace grade continues to develop strength, and with some producers inclined to hold out for a minimum of $3.50 per ton on fourth quarter business, the foundry market is expected to reflect this strength before long. Delivered prices of Connellsville foundry are $7.91 to $8.91, Newark and Jersey City, N. J., $8.03 to $9.03, northern New Jersey, and $8.79 to $9.79, New York or Brooklyn. By-product foundry coke ranges from $9.59 to $10.77 per ton, delivered Newark or Jersey City, N. J.

Warehouse Business.—Based on the volume of business done in the first half of the month, August promises to be as active as July. Much of this present activity, however, is among the warehouses carrying stocks of structural material, on which orders occasionally range up to 25 and 30 tons each. Reinforcing bars are also reported moving in fair volume. Black and galvanized sheets are quiet, but the current quotations are apparently being maintained except on extremely desirable business.

Old Material.—All grades continue strong with an upward tendency, largely as a result of further advances offered by brokers to fulfill contracts. No. 1 heavy melting steel is being purchased at $15.50 to $17 per ton and slightly higher, delivered eastern Pennsylvania. While a lot of about 1000 tons of No. 1 and No. 2 melting steel produced by a bolt and nut manufacturer in this district is reported to have brought a price equivalent to $17.50 per ton, delivered eastern Pennsylvania, the tonnage is not believed to have gone directly to a consumer. Offers of $14.50 per ton, delivered, on stove plate and $14 per ton on machine shop turnings, bundled skeleton and borings and turnings are reported bringing out little material, and some brokers are offering higher prices to secure tonnage. Specification pipe is being purchased at up to $16.50 per ton, delivered.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$11.00 to $11.50
Heavy melting steel (railroad or equivalent)	12.85 to 13.75
Rails for rolling	14.00 to 14.25
Steel car axles	20.75 to 21.25
Iron car axles	24.50 to 25.25
No. 1 railroad wrought	14.75 to 15.25
Forge fire	11.00 to 11.50
No. 1 yard wrought, long	13.75 to 14.25
Cast borings (steel mill)	10.50 to 11.00
Cast borings (chemical)	13.00 to 13.50
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	10.50 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.25 to 12.75
Stove plate (steel mill)	11.00 to 11.50
Stove plate (foundry)	11.50 to 12.00
Locomotive grate bars	11.00 to 11.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	13.00 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.50 to $17.00
No. 1 heavy cast (column, building materials, etc.), cupola size.	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Philadelphia

Pig Iron Steadier—Further Advances in Scrap—50 Locomotives Bought

PHILADELPHIA, Aug. 24.—Makers of heavy rolled steel products opened their books for fourth quarter last week and report that orders for plates and shapes have been received in substantial volume. Individually, the requirements placed are relatively small, but when aggregated reach a good volume. The prices are the same as those applying during the third quarter, namely, 2c., base Pittsburgh, for bars and shapes, and 1.90c., base Pittsburgh, for plates. It is asserted that the market is holding well at these levels, although steel bars are apparently not quite so firm as shapes and plates.

Scrap continues to be the strongest product on the list and a number of grades have advanced 50c. a ton on the basis of actual sales. Heavy melting steel now takes a range of $16 to $17.50. Steel works are still attempting to cover on this grade at $17, but so far have been unsuccessful. Some dealers are asking $18.

Pig Iron.—Sales of pig iron in this district during the past week are estimated at a little more than 15,000 tons, of which about 12,000 tons represented foundry grades and 3000 tons low phosphorus iron. Demand for basic is light. Furnaces report that the sales both for third and fourth quarter deliveries went at $21, furnace, for No. 2 plain and that the market has become firmer. Offers are said to have been made at a sligthly lower figure, but so far no sales have been reported on that basis. German iron having advanced, it is less of a factor in the market. It is quoted at $20.75, c.i.f., duty paid. Some other foreign iron, including that from the Netherlands, is selling at $21, c.i.f., duty paid, being on a parity with the domestic material. Producers are showing less inclination to equalize freight differentials or to vary specifications, and melters appear more willing to pay the prices asked. The greater

stability of the market is attributed partly to the firmer tone in coke and scrap prices. One furnace interest during the past week sold 5000 tons of foundry iron, about half of which is for third quarter and one half for fourth quarter delivery. Sales of low phosphorus iron went at the equivalent of $23, furnace. One or two furnaces are said to be preparing to blow out for relining, and in such an event further strength might develop in the market. The sales being made range from lots of 100 to 500 tons in most cases. While demand for basic iron is light, the price remains unchanged at $21 to $21.50, delivered. The strength of this grade is apparently due in part to the fact that production for the open market is not heavy and melters have little or no stocks on hand. The absence of considerable tonnages of any grade either at furnaces or in the hands of consumers is an element in improving the tone of the market.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.76 to $22.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.26 to 22.76
East. Pa. No. 1X	22.76 to 23.26
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	21.00 to 21.50
Gray forge	21.50 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Plates.—Makers of plates opened their books during the past week for fourth quarter business, and already have taken requirements running into thousands of tons. The bookings were from miscellaneous consumers, including railroads, the latter buying chiefly for repair work. The price of 1.90c., base Pittsburgh, remains unchanged, and apparently is better established. The general improvement in this market has been substantial for some mills. The American Locomotive Co. has taken 10 mountain-type locomotives for the Soo Line, 10 locomotives for the Norfolk & Western and 10 for the New York Central. The Lima Locomotive Works was awarded 20 locomotives for the New York Central Railroad.

Structural Shapes.—The structural market is being maintained at 2c., base Pittsburgh, and shading of this figure seems to have disappeared. A moderate amount of fourth quarter tonnage has been booked. Inquiries generally are for small lots, but have shown an increase. Fabricated work pending promises to develop some good-sized orders. It is expected that the award for the Wellington apartment in Philadelphia, requiring about 3000 tons, soon will be made. Stone & Webster have taken bids for 4575 tons for a power house and highway bridge for the Conowingo dam of the Susquehanna Power Co. The Fidelity Administration Building, Philadelphia, calling for 375 tons, went to the American Brown Boveri Electric Corporation. The State Highway Commission of New Jersey has asked for bids for a bridge spanning Pensauken Creek, requiring 120 tons.

Bars.—Inquiries for steel bars during the past week showed a slight slackening, and while there have been reports of a softer tone in the market, producers are quoting 2c., base Pittsburgh, and have booked some fourth quarter business at that figure. Some consumers, however, are endeavoring to get a concession but so far have been unsuccessful in their attempt, and makers express the opinion that any change in the market will be upward.

Warehouse Business.—Demand for material from warehouses is only moderate. Prices are unchanged.

Sheets.—Galvanized sheets are stronger, and the price of 4.20c. is not so common, since most makers are holding for 4.30c., base Pittsburgh. Black sheets also show a slightly stronger tone, and while 3.15c., base Pittsburgh, is quoted more frequently, tonnage still can be bought at 3.10c. Blue annealed sheets are quoted at 2.30c., base Pittsburgh.

Ferroalloys.—Scattered lots of ferromanganese are moving at $88, furnace. Domestic prices ranged from $88 to $95, furnace, and the English alloy is still quoted at $100, seaboard.

Cold-Rolled Strip Steel.—While 3.50c., base Pittsburgh, is quoted on cold-rolled strip steel, this figure is being shaded and the market is easy.

Hot-Rolled Strip Steel.—Good-sized tonnages of hot-rolled strip steel are being booked, and the prices of 2.50c., Pittsburgh, for narrow strips and 2.30c., Pittsburgh, for wider strips are firmer.

Imports.—Last week's receipts of pig iron at Philadelphia totaled 3450 tons, of which 2900 tons came from Germany and 550 tons from the Netherlands. Other imports were as follows: Chrome ore from Portuguese Africa, 2372 tons; structural steel from Belgium, 509 tons; steel bars from Belgium, 99 tons; steel billets from Germany, 24 tons; steel blooms from France, 260 tons; cast iron pipe from France, 73 tons; scrap steel from Canada, 21 tons.

Old Material.—The market has shown further strength. A number of grades have advanced 50c. a ton, based on sales. Heavy melting steel is now quoted at $16 to $17.50. Transactions at the higher figure, however, have involved only comparatively small lots. Mills are still trying to resist the advanced levels, attempting to buy tonnages at $17. Some dealers are paying the latter figure to cover on contracts and are trying to get $18 for new business. One of the most active grades is stove plate, but the price remains unchanged at $15. Stocks in the hands of both dealers and consumers are said to be small, and this leads brokers to believe that a better buying movement is near at hand.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.50 to $17.50
Scrap rails	16.50 to 17.50
Steel rails for rolling	17.50 to 18.00
No. 1 low phos., heavy, 0.04 per cent and under	21.00 to 22.00
Couplers and knuckles	19.00 to 19.50
Rolled steel wheels	19.00 to 19.50
Cast iron car wheels	17.50 to 18.00
No. 1 railroad wrought	18.00 to 18.50
No. 1 forge fire	15.00
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace)	13.50 to 14.00
Machine shop turnings (for steel works)	14.00
Machine shop turnings (for rolling mills)	14.00 to 14.50
Heavy axle turnings (or equivalent)	15.00 to 15.50
Cast borings (for steel works and rolling mill)	14.00 to 14.50
Cast borings (for chemical plant)	15.00 to 15.50
No. 1 cast	18.00 to 19.00
Heavy breakable cast (for steel works)	17.50
Railroad grate bars	15.00
Stove plate (for steel works)	15.00
Wrought iron and soft steel pipes and tubes (new specifications)	15.50 to 16.00
Shafting	21.00 to 22.00
Steel axles	23.00 to 24.00

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¾-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ⅜-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	2.00c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforced steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ⅛-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.25c.
No. 10 blue annealed sheets	3.40c.
No. 28 galvanized sheets	5.55c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	2.20c.
Tool steel	8.50c.
Swedish iron bars	6.00c. to 6.50c.

San Francisco

Ocean Freight Rates Down $1 a Ton But Steel Quotations Are Unchanged

SAN FRANCISCO, Aug. 21 (*By Air Mail*).—While freight rates on steel applying on water shipments from Atlantic ports via the Panama Canal have been reduced $1 a ton by practically all of the so-called conference steamship lines, and while there are indications that there is likely to be an additional reduction of $1 a ton by the non-conference carriers, there has been no change in Eastern mill quotations. All of the leading producers continue to quote plates at 2.30c. per lb., c.i.f. Coast ports, and shapes at 2.35c. In view of the reduction on ocean freight rates this is virtually equivalent to a mill advance of $1 a ton, and it is so construed by local buyers. On the other hand, an independent mill on the Atlantic seaboard is understood to have quoted plates at 2.25c., c.i.f., this week, both here and in Los Angeles.

During the week 922 tons of steel came in from Belgium, consisting of the following: 250 tons of reinforcing bars, 68 tons of soft steel bars, 80 tons of plates, 108 tons of beams, 140 tons of channels, 50 tons of round iron bars, and 226 tons of angles.

Pig Iron.—Fresh inquiry is developing, but buying is confined to small lots. Quotations are unchanged.

*Utah basic	$25.00 to $26.00
*Utah foundry, sil. 2.75 to 3.25	25.00 to 26.00
**English foundry, sil. 2.75 to 3.25.	25.00
**Indian foundry, sil. 2.75 to 3.25.	25.00
**German foundry, sil. 2.75 to 3.25.	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25	22.50
**Belgium foundry, sil. 2.75 to 3.25.	22.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings for the week total 4180 tons. Little of importance has developed in the way of fresh inquiry. The largest individual letting, 1700 tons, for a Masonic Temple, Oakland, Cal., was taken by the Moore Dry Dock Co., Oakland. The Pacific Coast Steel Co., San Francisco, has been awarded 800 tons for transmission towers for the city of Los Angeles, and the Bethlehem Steel Co. has taken 210 tons of sheet piling for pier work in San Francisco. Eastern mills continue to quote plain material at 2.35c., c.i.f. Coast ports.

Plates.—While most of the leading producers continue to ask 2.30c., c.i.f. Coast ports, 2.25c. is still being named, both here and in Los Angeles. However, it is not common. The outstanding letting of the week, 1450 tons, for a pipe line at Laguna Beach, Cal., was placed with the Steel Tank & Pipe Co., Berkeley, Cal. A standpipe for the city of Tacoma, Wash., calls for 150 tons, and the Shell Oil Co. is calling for bids on 310 tons for an 80,000-bbl. tank at San Pedro, Cal.

Bars.—Reinforcing bar lettings for the week exceed 700 tons. Low quotations continue to be made on Belgian steel, and local bar jobbers are now quoting nominally as follows: 2.60c., base per lb. on lots of 250 tons; 2.75c., base per lb. on carload lots, and about 3c., base, on less-than-carload lots.

Cast Iron Pipe.—Recent lettings include the following:

SEATTLE, WASH., 700 tons of 12 and 20-in. Class B, to the American Cast Iron Pipe Co.

SEATTLE, WASH., 400 tons of 8 and 20-in. Class B, to the American Cast Iron Pipe Co.

SHELTON, WASH., 200 tons of 6 and 8-in. Class B, to the American Cast Iron Pipe Co.

SEDRO-WOOLLEY, WASH., 200 tons of 6 and 8-in. Class B, to the American Cast Iron Pipe Co.

LONGVIEW, WASH., 100 tons of 8-in. Class B, to the American Cast Iron Pipe Co.

SACRAMENTO, CAL., 100 tons of 6-in. Class B for the Sacramento Light & Water Co., to B. Nicoll & Co.

BURBANK, CAL., 100 tons of 4 and 6-in. Class B, to B. Nicoll & Co.

SAN DIEGO, CAL., 145 tons of 6 and 10-in. Class B, to B. Nicoll & Co.

LOS ANGELES, 111 tons of 48-in. Class A, to United States Cast Iron Pipe & Foundry Co.

Warehouse Business.—Since the first part of August there has been a slight strengthening in demand. Quotations are unchanged.

Coke.—Buying is light, as most of the local users have covered their requirements for the balance of this quarter. German by-product coke is quoted at about $12 to $12.50 per net ton at incoming dock.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ⅝-in. and thicker	7.00c.
No. 28 black sheets	4.90c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.75
Cement coated nails, base per keg	3.00

Birmingham

Atlantic Coast Line Buys Rails—Pig Iron Quiet

BIRMINGHAM, Aug. 24.—There are no indications of a decline in foundry pig iron prices as inquiries come in for fourth quarter deliveries and the possibilities of a buying movement for that period become more promising. The small-lot sales which have been made during the past few weeks have about absorbed the probable output of blast furnaces for the last 30 days of the third quarter. Very little iron is being piled on furnace yards except in the Northwestern part of the State, where the Sloss-Sheffield Steel & Iron Co. has a blast furnace. This company has blown in its No. 4 furnace at North Birmingham after thorough repairs and will keep its No. 3 stack in blast until material is assembled for relining. All of the larger consuming interests are active except producers of soil pipe and fittings. Jobbing foundries are doing well, everything considered, and pressure pipe makers are very busy. Stove manufacturers are pushing their operations to meet what promises to be a big trade. The Southern territory continues to consume 90 per cent of the pig iron made in this State. Recent sales in this State have been in lots up to 750 tons each.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$21.00
No. 1 foundry, 2.25 to 2.75 sil.	21.50
Basic	21.00
Charcoal, warm blast	30.00

Rolled Steel.—All steel works in this district are active, in some instances operating at close to capacity. New orders for rails are reported to have been placed with the Tennessee Coal, Iron & Railroad Co. Concrete bars, wire and nails, plates and sheets are in active demand. There continues to be a heavy movement of steel down the Warrior River. That service has declined to handle 9900 tons of steel for delivery at Mobile before Sept. 6, being already booked to the capacity of its equipment. The Gulf States Steel Co. has relighted three of its open-hearth furnaces. Soft steel bars and structural shapes continue to range from 2.15c. to 2.25c., base Birmingham, with tank plates at 2.05c. to 2.15c.

Cast Iron Pipe.—Two of the larger producers of cast iron pipe are delayed in deliveries. Shipments, however, are heavy and production being held at close to capacity. Quotations are firm at $40 to $41, Birmingham, on 6-in. and larger sizes. The soil pipe and fittings trade is lagging.

Coke.—Specifications against contracts, together with new business, are sustaining close to capacity operation of by-product coke plants. Independent coke producers are pushing output and making deliveries promptly. Considerable coke is moving outside of the State. Foundry coke is firm at $5.50 to $6, Birmingham. Coal production in Alabama for the first seven months of the year is estimated at 11,837,000 tons. Coke production in Alabama in 1925 was 4,608,639 net tons, of which 4,513,932 tons was by-product and 94,707 tons beehive, the amount of coal used for coking being

6,883,260 tons. Beehive coke output this year will show a decided decline, since few beehive ovens are in operation.

Rails.—The Ensley mills of the Tennessee Coal, Iron & Railroad Co. are being operated at capacity. The Atlantic Coast Line Railroad has placed an order with that mill for 32,000 tons. More business is in sight for the plant here, since Southern railroads are pushing track replacement work. No announcement has yet been made as to the tonnage required by the St. Louis-San Francisco Railway for its proposed line from Aberdeen, Miss., to Kimbrough, Ala., 143 miles, the right of way of which has been laid out.

Old Material.—The market is dull and weak. Some little cast scrap is being sold, but the total amount of business is inconsequential. Heavier consumers of heavy melting steel are taking their time about buying. Prices of this grade are still around $13 per ton.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	12.00 to 13.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.00 to 17.00
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	7.50 to 8.00
Cast iron borings	7.50 to 8.00
Rails for rolling	15.00 to 16.00

Boston

German Structural Shapes Offered at $6 Below Domestic Steel—Pig Iron Quiet

BOSTON, Aug. 24.—Pig iron sales fell off noticeably the past week, and indications are August will go out quietly. Current business is confined largely to small lots of high silicon iron for mixture purposes, with Buffalo, western and eastern Pennsylvania and Alabama furnaces participating at prices considerably above those asked by New York State furnaces and the Mystic Iron Works. Some German No. 2 plain iron has been sold at more than $20, duty paid on dock Boston, and German No. 2X brought about $21, an advance of $1. Supplies of Indian iron have cleaned up at around $21.50, on dock duty paid. Some New York State furnaces are talking of advancing prices 50c. a ton, but for irons made in that State it is still a buyers' market. Another Massachusetts textile machinery maker is reported to have divided 2000 tons of No. 2X between two New York State furnaces at prices equivalent to about $18.50, Buffalo furnace.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.15 to $24.65
East. Penn., sil. 2.25 to 2.75	24.65 to 25.15
Buffalo, sil. 1.75 to 2.25	22.91 to 23.91
Buffalo, sil. 2.25 to 2.75	23.41 to 24.41
Virginia, sil. 1.75 to 2.25	27.92 to 28.42
Virginia, sil. 2.25 to 2.75	28.42 to 28.92
Alabama, sil. 1.75 to 2.25	30.60
Alabama, sil. 2.25 to 2.75	31.10

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flat, hot rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons	3.95c.
Squares and flats	4.45c.
Toe calk steel	6.00c.

Finished Steel.—Standard structural shapes at 1.90c. per lb., base Pittsburgh, appear to have passed, and the market is steady at 2c. Mills propose to quote 2c. per lb., base Pittsburgh, on plates for fourth quarter delivery, and have booked some business. Current orders are being taken at 1.90c., however. The market for bars is quiet but firm at 2c. per lb., base Pittsburgh. Domestic bars and shapes are encountering sharper competition from Continental material. German shapes, duty paid at Boston, are offered at $6 to $8 a ton less than domestic steel. Local fabricators during the past week made some low bids on prospective jobs in an effort to build up backlogs for the fourth quarter. The Boston & Maine Railroad has received another lot of German rails, 7300 tons.

Coke.—Specifications against contracts for New England made by-product foundry coke continue on a small scale, since there is little disposition among foundries to order ahead. The New England Coal & Coke Co. and the Providence Gas Co. are still doing business at $12, delivered, within a $3.10 freight rate zone. Good Connellsville foundry coke is freely offered at $1 a ton less, or $5.50 a ton on cars, ovens, but there is little demand for it.

Old Material.—Heavy melting steel is by far the most active item in the market. An unusually wide range of prices has developed for it. For instance, railroad steel is being bought for Pennsylvania delivery at $11.75 to $12.25, on cars shipping point. On ordinary steel for Conshohocken, Pa., delivery, around $11 is the general price paid; for delivery at a Delaware point the market is about $12, while for delivery to another Pennsylvania mill prices paid range from about $10.10 to $11.10. For delivery outside New England the market on chemical borings is around $10.65 to $10.75, on cars shipping point, but one company is reported to be paying $12 for delivery in Connecticut. Machine shop turnings are by no means plentiful, but apparently there are enough to go around. Recent sales include specification pipe for eastern Pennsylvania delivery, railroad malleable for New England delivery, and mixed borings and turnings, skeleton and forged material have been moved. The Boston & Maine Railroad on Monday, Aug. 23, closed bids on approximately 70 cars of miscellaneous scrap.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.50 to $20.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	17.00 to 18.00
Stove plate	13.00 to 13.50
Railroad malleable	19.50 to 20.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.75 to $12.25
No. 1 railroad wrought	12.50 to 13.00
No. 1 yard wrought	11.25 to 11.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.50
Machine shop turnings	9.00 to 9.50
Cast iron borings, chemical	10.50 to 10.75
Cast iron borings, rolling mill	9.00 to 9.25
Blast furnace borings and turnings	8.50 to 9.00
Forged scrap	9.50 to 10.00
Bundled skeleton, long	9.50 to 10.00
Forged flashings	9.50 to 10.00
Bundled cotton ties, long	8.75
Bundled cotton ties, short	9.25 to 9.50
Shafting	16.50 to 17.50
Street car axles	16.00 to 17.00
Rails for rerolling	12.50 to 13.00
Scrap rails	11.50 to 12.25

Missouri Charcoal Iron Plant to Be Sold

The Mid-Continent Iron Co., Midco, Carter County, Mo., has decided to liquidate its property, which has been idle for several years. The charcoal iron blast furnace and wood distillation plant of this company was operated during the war and for some time afterward. The Government, which took it over during the war and operated it under the supervision of the Bureau of Aircrafts, made a heavy investment in improvements. The property includes 350 acres of land, the blast furnace, rolling stock and locomotives, cranes and hoists, power plant and boilers, machine shop, saw mill, ore and stone crushers, chemical and dryer plant, charcoal retorts, office equipment and small stores.

Cincinnati

Coke Strengthens as More Coal Moves to Tidewater—Scrap Firm

CINCINNATI, Aug. 24.—Although pig iron sales dropped to the lowest point of the year in the past week, shipments by southern Ohio producers continue at a satisfactory rate. Sellers have made no further progress in their movement to establish Northern foundry iron at $20, base Ironton. While small lots are being sold at that price, an attractive tonnage still would bring out quotations of $19.50. Malleable iron remains at $19 to $19.50, base furnace, and there is scant possibility of an advance until Lake and Valley furnaces see fit to increase their prices. Bookings of Southern iron have been unimportant. Alabama iron is unchanged at $20.50 to $21, base Birmingham, and Tennessee iron at $21, base Birmingham. Jackson County silvery grades are steady at the current schedule of $27.50, furnace, for 8 per cent. The Monitor Furnace Co., Cincinnati, is expected to purchase approximately 1800 tons of Northern foundry iron for fourth quarter delivery, and a Cleveland consumer is asking for 500 to 1000 tons of Southern high phosphorus iron. Aside from these two inquiries, local dealers have little prospective business upon which they are working. The Marting Iron & Steel Co., Ironton, Ohio, has resumed production at its Marting furnace, which was banked for several weeks for repairs.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$24.19 to $24.69
Alabama fdy., sil. 2.25 to 2.75	24.69 to 25.19
Tennessee fdy., sil. 1.75 to 2.25	24.69
Southern Ohio silvery, 8 per cent	29.39
So. Ohio fdy., sil. 1.75 to 2.25	21.39 to 21.89
So. Ohio malleable	20.89

Reinforcing Bars.—The Pollak Steel Co. will supply 1200 tons of rail steel bars for the Great Lakes Terminal Building, Detroit. There is a noticeable absence of new projects of consequence. New billet bars are bringing 2c., base Pittsburgh, and rail steel bars 1.90c., mill. On sizable tonnages, however, these prices have been shaded at least $2 a ton.

Warehouse Business.—The volume of business in the first three weeks of August showed an increase of approximately 10 per cent compared with the same period in July and was about 25 per cent greater than in the corresponding weeks last year. Bars and tank plates have been especially active, while pipe is in better demand. There has been an appreciable gain in the sales of nails. Prices are steady and unchanged.

Finished Material.—Outstanding as a stabilizing factor in the market are the consistently good bookings from almost all consuming industries. Specifications and orders have been on a par with those in July, and unless there is a marked decline next week, the business taken in the past two months will set a new high mark for the mid-summer period. Despite the large volume of sales, stocks of consumers are at a low point. Fabricators in this district have from 40 to 60 days work ahead of them. Jobbers have been busier than usual at this time of the year and are expected to be important buyers during the next few months. Prices in general have been well maintained. In some cases, producers in a position to make prompt deliveries of bars have been successful in obtaining 2.10c. per lb., base Pittsburgh, for single carloads. However, this is the exception rather than the rule. Sheet mills have made little headway in their efforts to advance prices. Black sheets still can be procured at 3.10c., base Pittsburgh, although some sales at $2 a ton above that figure have been reported. Quotations on galvanized range from 4.20c. to 4.30c., base Pittsburgh. Blue annealed sheets are steady at 2.30c., base Pittsburgh, and automobile body sheets are bringing 4.20c., base Pittsburgh. There has been severe competition on common wire nails at points along the Ohio River. An Ironton, Ohio, producer continues to take business at $2.65 per keg, base mill. Some Eastern mills are holding to $2.65, base Pittsburgh, but others have lowered their quotations to meet the delivered price from Ironton. Plain wire is selling at $2.50 per 100 lb., Ironton or Pittsburgh. Bookings of tank plates at 1.90c., base Pittsburgh, have been well maintained. Bars and structural shapes remain at 2c., base Pittsburgh. Sales of cold-rolled products have increased and are about 25 per cent ahead of those in the same period last year. Demand is chiefly from the automotive industry.

Coke.—An advance of from 25c. to 50c. a ton on domestic by-product coke on Sept. 1 is anticipated by the local trade. There has been no material change in Wise County beehive coke, but the situation is favorable to producers. Many of them have concentrated their attention on the shipment of coal to the tidewater region, and consequently have cut down on their output of coke. Naturally such action has tightened the market both on furnace and foundry grades. Foundry coke from the New River district is in moderate demand at $7 to $7.50, ovens. Specifications for by-product foundry in the first three weeks of August were slightly below those in the same period last month.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $8.53; Wise County foundry, $7.09 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $9.64.

Old Material.—With the expectation of active buying by consumers within the next month, dealers are paying high prices for material. In some cases they are offering slightly more than they did a week ago. Steel companies in this district have purchased small quantities of scrap and are negotiating for large tonnages. However, they have found that dealers are determined to hold their stocks rather than dispose of them at the figures suggested by the mills. This failure to agree upon price has been a deterrent to heavy sales, but dealers are confident that increased operations will force steel companies to pay more for material in the near future.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$14.00 to $14.50
Scrap rails for melting	13.50 to 14.00
Short rails	19.00 to 19.50
Relaying rails	27.00 to 27.50
Rails for rolling	15.00 to 15.50
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	18.00 to 18.50
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	8.50 to 9.00
Champion bundled sheets	10.00 to 10.50
Per Net Ton	
Cast iron borings	7.50 to 8.00
Machine shop turnings	7.00 to 7.50
No. 1 machinery cast	18.00 to 19.00
No. 1 railroad cast	15.00 to 15.50
Iron axles	21.00 to 21.50
No. 1 railroad wrought	10.50 to 11.00
Pipes and flues	9.00 to 9.50
No. 1 busheling	10.50 to 11.00
Mixed busheling	7.00 to 7.50
Burnt cast	8.00 to 8.50
Stove plate	10.50 to 11.00
Brake shoes	11.00 to 11.50

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.20c. to 3.30c.
Reinforcing bars	3.20c. to 3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in	19.00
4-in.	39.00

Buffalo

Steel Output at 85 to 90 Per Cent—Mills Buy Scrap

BUFFALO, Aug. 24.—Though not translated into higher prices, there seems to be an undercurrent of strength in the pig iron market. No large tonnages have been sold during the week. One maker reports the sale of a total of 750 tons on one day and 500 on another. Smaller tonnages were sold the rest of the week, but total sales by all furnaces during the week probably aggregated 7000 to 8000 tons. Foundry iron is unchanged at $20, base furnace, on shipments to melters in the district. Foundry operations average only about 66 per cent, but a report that more stacks will go out of blast is assisting in keeping the market firm.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$19.00 to $20.00
No. 2X foundry, sil. 2.25 to 2.75	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25	20.50 to 21.50
Malleable, sil. up to 2.25	20.00
Basic	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Buffalo steel mills are operating at a higher rate than for weeks. It is estimated that none of the mills is running at below 85 per cent and some are on a 90 per cent basis. Bars are firm at the new price of 2.365c., Buffalo, for fourth quarter delivery, while 2.265c. to 2.365c. is being quoted on third quarter business. Shapes are being quoted at 2.265c. and plates at 2.165c., Buffalo. Sheets are in strong demand, with 3.15c., base Pittsburgh, being named for black. Reinforcing bars are not quite so actively sought; an inquiry for 150 tons is the only one of size. The inquiry for 3200 tons of sheet piling for a city harbor project has not yet been placed. Warehouse business is brisk.

Old Material.—Buying by the mills, a decline in the production of scrap and low stocks in dealers' yards have combined to make a fairly strong market this week. Considerable tonnage of heavy melting steel has been bought at $18 to $18.50, and sufficient hydraulic compressed and No. 1 busheling have been sold to make the market on both these commodities $17 to $17.50. The secondary grade of heavy melting steel is now bringing $16.50 to $17. Dealers have been short on many grades and have been paying high prices to cover. Machine shop turnings range from $10.50 to $11. Specialty buying has been better, with $19 to $19.50 paid for low phosphorus. No. 1 cast and stove plate are in good demand. Automobile accessory plants have not been so busy the past week, and this has lessened the production of scrap.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$16.50 to $17.00
Selected No. 1 heavy melting steel	18.00 to 18.50
Low phosphorus	18.50 to 19.00
No. 1 railroad wrought	15.00 to 15.50
Car wheels	17.00 to 17.50
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	12.00 to 12.50
Cast iron borings	12.00 to 13.00
No. 1 busheling	17.00 to 17.50
Stove plate	15.25 to 15.50
Grate bars	14.00 to 14.50
Hand bundled sheets	12.00 to 12.50
Hydraulic compressed	17.00 to 17.50
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	13.75 to 14.25

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.45c.
No. 10 blue annealed sheets	3.80c.
No. 28 galvanized sheets	5.60c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb.	3.90

St. Louis

Steel Buying in Fair Volume Though Individual Orders Are Small

ST. LOUIS, Aug. 24.—Business in pig iron during the last week amounted only to a few hundred tons in small lots, and no inquiries of size are pending. The dullness which has followed heavy buying earlier in the summer would indicate that melters in this district are fully covered for the third quarter. Some foundries have even bought sufficient iron for the fourth quarter. The heat has been a factor in reducing the melt. Prices are unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25	24.42 to 25.42
Granite City iron, sil. 1.75 to 2.25	22.81 to 23.31

Coke.—Considering the hot weather and its effect on foundry operations, there has been a fairly good demand for foundry coke. There also is a better demand for domestic grades, with the exception of egg and chestnut sizes, which are dragging.

Finished Iron and Steel.—Galvanized roofing seems to be the bright spot in these lines, with the demand coming mostly from the South. There is a good steady demand for other items, with small orders still predominating. Warehouse business is satisfactory, being much better than last summer, and the year so far is ahead of the same period in 1925.

Old Material.—Buying of old material by consumers amounts to virtually nothing. The mills in this district are waiting for a backlog of orders before they invest in scrap, unless it is distress material offered at bargain prices. Some dealers are laying down specialties, but for the most part they are buying only against contracts.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$12.00 to $12.50
Rails for rolling	16.75 to 17.25
Steel rails less than 3 ft.	16.75 to 17.25
Relaying rails, 60 lb. and under	20.50 to 23.50
Relaying rails, 70 lb. and over	26.50 to 29.00
Cast iron car wheels	15.25 to 15.75
Heavy melting steel	13.75 to 14.25
Heavy shoveling steel	13.75 to 14.25
Frogs, switches and guards cut apart	15.50 to 16.00
Railroad springs	17.50 to 18.00
Heavy axle and tire turnings	11.00 to 11.50
No. 1 locomotive tires	16.00 to 16.50
Per Net Ton	
Steel angle bars	13.50 to 14.00
Steel car axles	19.25 to 19.75
Iron car axles	21.25 to 21.75
Wrought iron bars and transoms	20.25 to 20.75
No. 1 railroad wrought	12.25 to 12.75
No. 2 railroad wrought	12.25 to 12.75
Cast iron borings	9.75 to 10.25
No. 1 busheling	10.75 to 11.25
No. 1 railroad cast	14.75 to 15.25
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	13.25 to 13.75
Machine shop turnings	7.00 to 7.50
Bundled sheets	7.00 to 7.50

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.50c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent Off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Canadian Output of Iron and Steel Declines

TORONTO, ONT., Aug. 24.—During the month of July the production of pig iron in Canada amounted to 67,232 gross tons, a decline of 5 per cent from the 70,854 tons produced during the month of June. Foundry pig iron output at 22,490 tons was double the 10,087 tons reported for June, but this gain was more than offset by a decline in basic iron production to 40,260 tons in July from 52,614 tons in June, and a drop in malleable iron output to 4482 tons, as compared with 8153 tons in the previous month. For the first seven months of the year the production of pig iron totaled 438 096 gross tons, or 40 per cent over the 311,838 tons reported for the corresponding seven months of last year. This year's output was composed of 297,719 tons of basic, 115,813 tons of foundry, and 24,564 tons of malleable iron. At the close of July one blast furnace was blown out, leaving five active stacks located as follows: British Empire Steel Corporation, Sydney, N. S., one; Steel Co. of Canada, Ltd., Hamilton, Ont., two; Algoma Steel Corporation, Sault Ste Marie, Ont., two.

The production of steel ingots and castings for the month of July was 64,847 tons, or 20 per cent below the 81,277 tons made in June. The decline in production was general in all grades. Steel ingot output dropped to 62,396 tons from 77,684 tons in June, and the production of direct steel castings fell to 2451 tons, as compared with 3593 tons in June. For the seven months ended with July 31, the production of ingots and castings totaled 496,031 tons, an increase of 11 per cent over the 446,168 tons reported for the corresponding seven months of last year.

National Tube Co. Adopts Simplified Sizes

The National Tube Co. announces its accord with the recommendations growing out of the conference between manufacturers of pipe and fittings and the Department of Commerce, in Washington, May 28, when it was agreed to eliminate certain sizes of pipe and to establish a so-called simplified practice, whereby from a total of 62 sizes there is a reduction of 13, or a new total of 49 sizes of pipe in the standard, extra strong and double extra strong classes.

The company therefore has notified the trade that effective Sept. 1, 1926, it will discontinue to manufacture as a regular stock item any size of pipe not in accordance with the new simplified practice, unless for some very special purpose, and that on the same date the eliminated sizes in the hands of distributers and the mills will be withdrawn.

Details of the conference were published in THE IRON AGE of June 3, page 1594. The term "standard weight pipe" has been substituted for "standard merchant pipe" to conform with the terminology employed in the specifications of the American Society for Testing Materials. For the same reason the indicated dimensions were extended to the third decimal place.

In the accompanying table are the recommended stock sizes and dimensions of wrought iron and wrought steel pipe, valves and fittings. Random lengths are according to present pipe mill practice.

Canadian Scrap Market More Active

TORONTO, ONT., Aug. 23.—A stronger demand for iron and steel scrap developed in the Canadian markets during the past week. In the Ontario market inquiries are on the increase, although some consumers are of the opinion that prices are too high. In the Quebec district demand has picked up, and sales for the week show general improvement over those of previous weeks. The improved demand is both for home consumption and on export account. During the week some downward revisions were made in scrap prices in the Toronto market, while Montreal prices advanced. Demand for heavy melting steel is stronger, with dealers now offering $11 per gross ton, delivered Hamilton. Steel and machine shop turnings declined $1 per gross ton, with dealers now offering $8.50 per ton, Toronto, for these materials; wrought pipe dropped from $7 to $6 per ton. Malleable scrap was advanced $1 per net ton, while standard car wheels declined $1 and stove plate $2 per net ton. Advances in dealers' buying prices in the Montreal market range from $1 to $2 per ton, with practically all commodities affected. Dealers' buying prices are as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$8.50	$8.00
Machine shop turnings	8.50	8.00
Wrought pipe	6.00	6.00
Rails	11.00	10.00
No. 1 wrought	11.00	14.00
Heavy melting steel	11.00	9.00
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Per Net Ton		
Standard car wheels	15.00	16.00
Malleable scrap	14.00	14.00
Stove plate	10.00	13.00
No. 1 machinery cast	16.00	18.00

Large Scherbius Equipment Ordered for Sparrows Point

Two of the largest synchronous motors and what is said to be the largest Scherbius equipment in the world have been purchased by the Bethlehem Steel Co. for the new continuous skelp and sheet bar mill at its Sparrows Point plant. The synchronous motors are rated 4000 hp., 83.3 r.p.m., and 6500 hp., 187½ r.p.m., 6600 volts, three phase, 60 cycles. These motors are said to be the largest built for a main roll drive, with the exception of the 9000 hp. General Electric Co. motor in the River Furnace plant of the McKinney Steel Co. at Cleveland. They will be built at Schenectady.

Size (Nominal Inside Diam.), In.	Standard Weight Pipe: Outside Diam., In.	Standard Weight Pipe: Approximate Thickness, In.	Standard Weight Pipe: Weight per Ft.† Plain Ends, Lb.	Standard Weight Pipe: Weight per Ft.† Threads and Couplings, Lb.	Extra Strong: Outside Diam., In.	Extra Strong: Approximate Thickness, In.	Double Extra Strong: Outside Diam., In.	Double Extra Strong: Approximate Thickness, In.
⅛	0.405	0.068	0.244	0.245	0.405	0.095	.....	.....
¼	0.540	0.088	0.424	0.425	0.540	0.119	.....	.....
⅜	0.675	0.091	0.567	0.568	0.675	0.126	.....	.....
½	0.840	0.109	0.850	0.852	0.840	0.147	0.840	0.294
¾	1.050	0.113	1.130	1.134	1.050	0.154	1.050	0.308
1	1.315	0.133	1.678	1.684	1.315	0.179	1.315	0.358
1¼	1.660	0.140	2.272	2.281	1.660	0.191	1.660	0.382
1½	1.900	0.145	2.717	2.731	1.900	0.200	1.900	0.400
2	2.375	0.154	3.652	3.678	2.375	0.218	2.375	0.436
2½	2.875	0.203	5.793	5.819	2.875	0.276	2.875	0.552
3	3.500	0.216	7.575	7.616	3.500	0.300	3.500	0.600
3½	4.000	0.226	9.109	9.202	4.000	0.318	4.000	0.636
4	4.500	0.237	10.790	10.889	4.500	0.337	4.500	0.674
5	5.563	0.258	14.617	14.810	5.563	0.375	5.563	0.750
6	6.625	0.280	18.974	19.185	6.625	0.432	6.625	0.864
8	8.625	0.322*	28.554	28.809	8.625	0.500	8.625	0.875
10	10.750	0.365*	40.483	41.132	10.750	0.500	.....	.....
12	12.750	0.375*	49.562	50.706	12.750	0.500	.....	.....

*These thicknesses correspond to the heaviest weights made of these sizes. Lighter weights—namely: 8 in.—25 lb., 10 in.—32 lb., 10 in.—35 lb., and 12 in.—45 lb., can be furnished as heretofore when specified.
†Column of weights added by National Tube Co. for convenience and comparison.

FABRICATED STRUCTURAL STEEL

Inquiries Show a Falling Off But Awards Hold Up Fairly Well With 29,000 Tons

Although structural steel awards for the week are fairly large for this time of year, totaling 29,000 tons, there has been a marked falling off in the volume of new work up for bids. The largest award was 5000 tons for a New York apartment building. A Chicago office building takes 3200 tons. Awards follow:

BOSTON, 375 tons, Harvard Medical School dormitory, to New England Structural Co.

WEYMOUTH, MASS., 650 tons, power house addition, Edison Electric Co., to New England Structural Co.

PROVIDENCE, R. I., 1100 tons, annex for the Rhode Island Hospital Trust Co., to Jones & Laughlin Steel Corporation.

NEW YORK, 5000 tons, Medici apartment building on Central Park South, to Levering & Garrigues Co.

NEW YORK, 500 tons, building for Union Theological Seminary, to an unnamed fabricator.

NEW YORK, 500 tons, building for Bronx Gas & Electric Co. in Bronx borough, to an unnamed fabricator.

NEW YORK, 1300 tons, warehouse for the Lincoln Safe Deposit Co. at Sixty-ninth Street and Third Avenue, to Levering & Garrigues Co.

NEW YORK, 800 tons, apartment building on West Eighty-first Street, to Drier Iron Works.

NEW YORK, 300 tons, apartment building at 176th Street and Grand Avenue, to Drier Iron Works.

NEW YORK, 200 tons, apartment building at 9215 Third Avenue, to Joseph Gaydica Iron Works, Inc.

NEW YORK, 335 tons, theater at Fifteenth Avenue and Seventieth Street, Brooklyn, to Nelson Landgren Co.

NEW YORK, 450 tons, apartment building at Sedgwick Avenue and 197th Street, to Alpha Iron Works.

RICHMOND HILL, L. I., 130 tons, apartment building at 102nd Street and Eighty-eighth Avenue, to Charles Strebel & Sons.

TIBBETS BROOKS PARK, N. Y., 100 tons, bath house, to the Porcupine Co.

BRIGANTINE, N. J., 500 tons, Brigantine Hotel, to American Brown Boveri Electric Corporation.

PENNSYLVANIA RAILROAD, 600 tons, two bridges, to McClintic-Marshall Co.

ERIE RAILROAD, 600 tons, two bridges totaling 300 tons to the American Bridge Co. and two totaling 300 tons to the Fort Pitt Bridge Works.

BALTIMORE, 600 tons, building for Baltimore City College, to an unnamed fabricator.

BALTIMORE & OHIO RAILROAD, 300 tons, bridge at Chicago, to McClintic-Marshall Co.

WASHINGTON, D. C., 400 tons, stone cutting shed, to Barber & Ross.

MIAMI, FLA., 400 tons, warehouse, to an unnamed fabricator.

BARBERTON, OHIO, 450 tons, building for Columbia Chemical Co., to Pittsburgh Bridge & Iron Co.

CINCINNATI, 1750 tons, Chamber of Commerce, to General Iron Works, Cincinnati.

MEMPHIS, TENN., 700 tons, Kress store and office building, to St. Louis Structural Steel Co., St. Louis.

CHICAGO, 3200 tons, Mather Building, to the Gage Structural Steel Co. and the Vanderkloot Steel Works.

CHICAGO, 275 tons, tank house for Armour & Co., to the Gage Structural Steel Co.

LITTLE ROCK, ARK., 190 tons, lodge building, to the Mississippi Valley Structural Steel Co.

SAGINAW, MICH., 150 tons, addition to the Columbia Mills, to the Gage Structural Steel Co.

EAST CHICAGO, IND., 400 tons, boiler house for the Roxana Petroleum Corporation, to the Worden-Allen Co., Milwaukee.

OTTAWA, ILL., 1100 tons, extension to the plant of the National Plate Glass Co., to the Mississippi Valley Structural Steel Co.

CHICAGO, 100 tons, addition to tractor plant of International Harvester Co., to Vanderkloot Steel Works.

SPOKANE, WASH., 150 tons, for a pipe line for the municipality, to Steel Tank & Pipe Co.

ESQUIMALT, B. C., 130 tons, for a dry dock at Esquimalt, to an unnamed fabricator.

PALO ALTO, CAL., 200 tons, for a hospital, to Minneapolis Steel & Machinery Co.

SANTA BARBARA, CAL., 250 tons, St. Francis Hospital, to Llewellyn Iron Works.

OAKLAND, CAL., 1700 tons, Scottish Rite Temple, to Moore Dry Dock Co.

LAGUNA BEACH, CAL., 1450 tons, for a pipe line, to Steel Tank & Pipe Co.

LOS ANGELES, 900 tons, Parmalee-Dohrman Building, Flower Street, to Union Iron Works.

LOS ANGELES, 800 tons, transmission towers required under Specification P-388, to Pacific Coast Steel Co.

SAN FRANCISCO, 100 tons, addition to Kress Department Store, 939 Market Street, to Central Iron Works.

SAN MATEO COUNTY, CAL., 375 tons, undergrade crossing for Southern Pacific, to Dyer Brothers.

Structural Pending

BOSTON, 125 tons, Old Colony Trust Co., alterations.

CAMBRIDGE, MASS., 100 tons, office building.

BOSTON & MAINE RAILROAD, 500 tons, bridge at Somerville, Mass.

NEW YORK, 31,000 tons, for bridges over the Kill van Kull from Staten Island to New Jersey, previously reported; the Bethlehem Steel Corporation was low bidder on the bridge from Elizabeth, N. J., to Holland Hook, S. I., about 13,000 tons, and the McClintic-Marshall Co. was low bidder on the bridge from Perth Amboy, N. J., to Tottenville, S. I., about 18,000 tons.

PENSAUKEN CREEK, N. J., 120 tons, for highway bridge. Bids asked by New Jersey State Highway Commission.

CLEVELAND, 200 tons, repairs to Kinsman Avenue Bridge.

BEREA, OHIO, 200 tons, high school.

CEDAR RAPIDS, IOWA, 300 tons, Masonic Temple.

ST. LOUIS, tonnage being estimated, six steel barges; bids will be received until Sept. 15 by United States Engineers' Office, 428 Custom House.

TACOMA, WASH., 150 tons, 1,000,000-gal. standpipe for city of Tacoma; bids in.

SAN PEDRO, CAL., 310 tons, 80,000-barrel tank for Shell Oil Co.

SAN FRANCISCO, 100 tons, apartment house at Bush and Jones Streets.

HONOLULU, HAWAII, 475 tons, canning factory for Libby, McNeill & Libby.

RAILROAD EQUIPMENT

Pennsylvania Orders Rebuilding of 2000 Cars—50 Locomotives Bought

While by no means active, the railroad equipment market has taken on a little more life. The Pennsylvania Railroad has ordered the rebuilding of 2000 steel hopper cars, with probably more to follow, and a total of 50 locomotives has been bought by three lines. The principal items of the week follow:

The Pennsylvania Railroad has awarded a contract to the Ralston Steel Car Co. for the rebuilding of 2000 steel hopper cars and is understood to be figuring with other car builders on considerably more cars to be rebuilt.

The American Refrigerator Transit Co., which has received bids on 2000 refrigerator cars, has asked for revision of some quotations, hence its orders may be delayed for another week or two.

The New York Central has purchased 20 locomotives from the Lima Locomotive Works for use of the Boston & Albany and 10 from the American Locomotive Co. for use of the Cleveland, Cincinnati, Chicago & St. Louis.

The Minneapolis, St. Paul & Sault Ste. Marie has ordered 10 mountain type locomotives from the American Locomotive Co.

The Norfolk & Western has given an order to the American Locomotive Co. for 10 Mallet type locomotives.

The Seaboard Air Line is in the market for 35 locomotives.

The Chicago, North Shore & Milwaukee is in the market for 4 caboose cars.

The Chicago & North Western is taking bids on two 70-ft. baggage-dormitory cars.

The Union Pacific is in the market for seven 60-ft. baggage cars.

The Gulf, Mobile & Northern is inquiring for two locomotives.

The Kentucky & Indiana Terminal has ordered six 8-wheel switching locomotives from the Lima Locomotive Works.

The Richmond, Fredericksburg & Potomac is in the market for four Pacific and two 6-wheel switching locomotives.

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	Aug. 24	Aug. 23	Aug. 21	Aug. 20	Aug. 19	Aug. 18
Lake copper, New York	14.50	14.50	14.50	14.50	14.50	14.50
Electrolytic copper, N. Y.*	14.12½	14.12½	14.12½	14.12½	14.12½	14.12½
Straits tin, spot, New York	65.00	65.12½	....	65.00	65.50	64.75
Lead, New York	8.90	8.90	8.90	8.90	8.90	8.90
Lead, St. Louis	8.75	8.75	8.75	8.75	8.75	8.75
Zinc, New York	7.80	7.80	7.80	7.75	7.75	7.70
Zinc, St. Louis	7.40	7.40	7.40	7.35	7.35	7.30

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Aug. 24.—Copper is quiet, with prices slightly weaker. The tin market is also quiet, but the price has held with only slight fluctuations during the week. Lead is dull, but the demand for zinc continues fairly good. There have been fairly substantial sales of antimony for future delivery.

Copper.—Although most of the leading producers of copper are still holding for 14.50c., delivered, for electrolytic, there has been weakness in the price during the past week. Some of the smaller producers and at least one large producer have made sales at 14.37½c., delivered, and most of the selling has been at that figure or at 14.42½c. Business has been quiet. This does not explain the weakness, however, as producers are well sold ahead, some having very little metal for September and several having substantial orders on their books for October shipment. Export buying has dropped off. The British situation, due to the failure to reach a settlement of the coal controversy, has been somewhat discouraging to any advance in the market there. The export price continues at 14.65c., c.i.f. foreign ports.

Tin.—During the past week tin appears to have been marking time. Sales were few, amounting to not more than 600 or 700 tons, and dealers were more active than consumers. The future strength of the tin market depends largely on the extent to which consumers come into the market and how soon they come in. Some dealers are becoming eager for orders so that they may realize on their paper profits. The price range during the week was slight, the minimum being 64.75c. per lb. on Aug. 18 and the maximum 65.50c. on the 19th. The market today was fairly steady at 65c., a decline of ⅛c. per lb. from Monday's price. The London market today was quoted at £291 12s. 6d. per ton for spot standard, £286 10s. for future standard and £299 for spot Straits. The Singapore price was £294 10s.

Lead.—The lead market has been quiet. Some holders are still asking 9c., New York, but it is possible to buy lead freely at 8.85c. to 8.90c., New York, or 8.70c. to 8.75c., St. Louis. Buyers are not anxious to buy and there is no great pressure to sell, but nevertheless the trend of the market is toward weakness.

Zinc.—Galvanizers continue to buy zinc freely. Most of the low-priced zinc, available a week or two ago at 7.30c. to 7.35c., St. Louis, seems to have disappeared, and current quotations are usually 7.40c. to 7.45c., St. Louis, and 7.80c. to 7.85c., New York. An advance in the price of Joplin ore, from $49 to $50 a ton, announced on Saturday, has had some effect in strengthening the metal market, but the fairly steady demand has been the main factor.

Antimony.—There have been fairly good sales of antimony for November-December delivery at 15.25c. per lb., duty paid, but in spot antimony there is almost no activity. The usual quotation for August-September is 16c., duty paid.

Nickel.—Wholesale lots of ingot nickel are quoted at 35c., and shot nickel at 36c. per lb. Electrolytic nickel is quoted at 39c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Non-Ferrous Metals at Chicago

AUG. 24.—This market continues strong, and the prices of tin and zinc have advanced. Demand for

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	66.50c. to 67.75c.
Tin, bar	68.75c. to 70.25c.
Copper, Lake	15.50c.
Copper, electrolytic	15.25c.
Copper, casting	14.75c.
Zinc, slab	8.50c. to 9.00c.
Lead, American pig	9.50c. to 10.00c.
Lead, bar	11.50c. to 12.50c.
Antimony, Asiatic	18.00c. to 19.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½	40.50c. to 40.75c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	69.75c.
Tin, bar	72.75c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	9.75c.
Antimony, Asiatic	20.50c.
Lead, bar	11.50c.
Babbitt metal, medium grade	22.50c.
Babbitt metal, high grade	75.25c.
Solder, ½ and ½	42.25c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	19.37½c. to 20.37½c.
Copper, hot rolled	23.00c. to 24.00c.
Copper, cold rolled, 14 oz. and heavier	25.25c. to 26.25c.
Seamless Tubes—	
Brass	24.25c. to 25.25c.
Copper	25.00c. to 26.00c.
Brazed Brass Tubes	27.37½c. to 28.37½c.
Brass Rods	17.12½c. to 18.12½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.00c. to 13.25c.
Zinc sheets, open	13.50c. to 13.75c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are unchanged since the advance of Aug. 3. There has been no change in zinc sheets and lead full sheets since July 20 and 26 respectively.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	19.37½c.
Copper, hot rolled	23.00c.
Zinc	11.75c.
Lead (full sheets)	12.50c. to 12.75c.
Seamless Tubes—	
High brass	24.25c.
Copper	25.00c.
Rods—	
High brass	17.12½c.
Naval brass	19.87½c.
Wire—	
Copper	16.37½c.
High brass	19.87½c.
Copper in Rolls	21.87½c.
Brazed Brass Tubing	27.37½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	Base per Lb.
High brass	19⅝c. to 20⅝c.
Copper, hot rolled	23c.
Copper, cold rolled, 14 oz. and heavier	25¼c.
Zinc	12.25c.
Lead, wide	11.25c.
Seamless Tubes—	
Brass	24¼c.
Copper	25c.
Brazed Brass Tubes	27⅜c.
Brass Rods	17½c.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	12.25c.	13.50c.
Copper, heavy and wire	11.75c.	12.50c.
Copper, light and bottoms	10.00c.	11.25c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	8.00c.
Heavy machine composition	8.75c.	10.125c.
No. 1 yellow brass turnings	8.50c.	9.25c.
No. 1 red brass or composition turnings	8.25c.	9.25c.
Lead, heavy	7.75c.	8.00c.
Lead, tea	5.75c.	6.50c.
Zinc	4.25c.	4.75c.
Sheet aluminum	17.00c.	19.00c.
Cast aluminum	17.00c.	19.00c.

copper is heavy, and the price is firm. Buying of old metals has fallen off slightly during the week, and prices are lacking in strength.

We quote, in carload lots, Lake copper, 14.75c.; tin, 66.50c.; lead, 9c.; zinc, 7.85c.; in less than carload lots, antimony, 17.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 7.50c.; zinc, 5c.; pewter, No. 1, 35c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 17.75c.; all being dealers' prices for less than carload lots.

Business Analysis and Forecast

(*Concluded from page* 561)

also averaged higher in July, and in the week of Aug. 10 reached $17.50 (for heavy melting steel scrap at Pittsburgh). This is the highest since the week of March 23. Thus the scrap barometer, also, is favorable in its indications for the steel industry. Judging by the past, no sustained recession in that industry will occur in the near future.

It is interesting to note that the rise in scrap prices was forecast by the rate of change in unfilled orders. Such an anticipation of the trend of scrap is not always given by the unfilled orders, but it occurs frequently enough to make the unfilled orders barometer of distinct importance to scrap dealers and purchasers.

Building Declines as Money Tightens

OUR third chart shows the trend of building contracts together with the course of interest rates. One of the most significant factors in the industrial situation is building activity. New contracts for building and also contemplated new construction as reported by the F. W. Dodge Co. have shown a steady downward trend for six months in succession. Insofar as contracts are concerned, other recent periods of decline have lasted as long as this, but in no recent year has a downward trend in contemplated construction been of such long duration.

Moreover, this is the first time in recent years that the decline in construction has carried the figure for the current month below that of the same month in the preceding year. As chart readers would say, building contracts have made a "new low," and if allowances were made for an assumed normal growth it would be indicated that the expansion of building activity, which has been so much in evidence during recent years, is about to receive a decided check. *A small temporary increase is not improbable this fall, but the peak has been passed and the decline in permits and contracts should soon find expression in a diminishing rate of construction.*

The trend of money rates is partly responsible for the decline in building contracts. Money is firming up decidedly. Commercial paper rates, as shown in the third chart, averaged higher in July and time money has shown a distinct advance. Reflecting these conditions, the Federal Reserve Bank of New York recently raised its re-discount rate from 3½ per cent to 4 per cent.

The higher money rates are due partly to the expansion in business and partly to the banking situation. Of course, the latter is affected by business expansion, but the growing volume of speculation on the stock exchange also plays a part, the loans of banks secured by stocks and bonds being at a high level. It is possible that the large volume of business now done on the installment plan is having the effect of increasing the volume of bank credit required, in a way that is not altogether desirable.

No really tight money is yet in prospect. The Federal Reserve ratio, while gradually declining, is still high, but the time is drawing near when money rates will be high enough to put a decided damper on speculative activity. This is true not only of the stock market but of speculative building.

JULY SHEET SALES GAINED

Largest Since Last November, According to Report of National Association of Sheet and Tin Plate Manufacturers

July sales by independent manufacturers of sheet steel were the largest of any month since last November, totaling 352,414 tons, as against 370,361 tons for that month. Last month's sales exceed those of June by 68,095 tons, and fell only a few hundred tons short of exceeding those for July last year by 100,000 tons. July bookings ran 88,389 tons ahead of shipments, giving unfilled orders a substantial boost.

The apparent gain in unfilled business is the excess of sales over shipments, but the amount of such business given in the monthly report of the National Association of Sheet and Tin Plate Manufacturers is 520,281 tons, which is 98,044 tons more than was reported as of June 30.

Manufacturers cut the stocks of sheets on hand awaiting shipping instructions by 13,357 tons last month and unsold stocks by 9109 tons, but there was a decrease in production in July as compared with the month before of 28,684 tons. Shipments in July were 1795 tons greater than the total of the production and the decreases in the unshipped and unsold stocks. The figures in detail follow:

	1926			1925
	July	June	May	July
No. of mills	710	710	710	699
Capacity per month	420,300	432,650	420,300	433,600
Per cent reporting	73.8	73.8	74.8	75.3
Sales	352,414	284,319	301,743	252,871
Production	239,764	268,448	264,541	246,404
Shipments	264,025	262,231	267,299	223,454
Unfilled orders	520,281	422,237	418,582	475,950
Unshipped stock	107,931	121,288	120,036	88,859
Unsold stocks	46,031	55,140	58,503	42,081
Percentages to Capacity				
Sales	113.6	89.0	64.2	80.1
Production	77.3	84.0	84.3	75.5
Shipments	85.1	82.1	85.1	70.8
Unfilled orders	167.7	132.2	133.4	150.8
Unshipped stocks	34.8	38.0	38.2	27.2
Unsold stocks	14.8	17.3	18.6	12.9

PERSONAL

Allan Fraser has been appointed by the Crucible Steel Co. of America manager of its district office and warehouse located at Buffalo. Mr. Fraser was at one time district sales manager of the American Steel & Wire Co. at Buffalo and when the Wickwire Steel Co. completed its wire mills on the Niagara River he joined that company, leaving Buffalo to open offices in New York. For the past seven years Mr. Fraser has held important posts with the Wickwire-Spencer Steel Co., resigning last year from the position of Pacific Coast manager in San Francisco, the company's Western headquarters.

ALLAN FRASER

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Frederick S. Bacon, formerly president of the Puritan Dye & Chemical Co., Boston, has joined the organization of Arthur D. Little, Inc., Cambridge, Mass., chemists, engineers and managers.

—

Leigh Willard, for many years vice-president of W. J. Rainey, Inc., New York, and in charge of operations of the Rainey-Wood Coke Co., Philadelphia, has been elected president and general manager of the Winifrede Coal Co., Kanawha County, W. Va.

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Samuel Arnold, III, has been made representative in the Pittsburgh district for the Pennsylvania Pump & Compressor Co., Easton, Pa.

—

E. W. Buschman, formerly manager of the E. A. Kinsey Co., Indianapolis, has been appointed general sales manager of the Foster Machine Co., Elkhart, Ind.

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O. R. Lane, formerly in the St. Louis office of the Reading Iron Co., Reading, Pa., has been placed in charge of the company's office recently opened at 721 Pioneer Trust Building, Kansas City, Mo.

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W. S. Jones, formerly vice-president of the Vanadium-Alloys Steel Co., Latrobe, Pa., has been elected vice-president in charge of tool steel sales of the Carpenter Steel Co., Reading, Pa.

—

Howard Butt, formerly with the Riley Stoker Corporation, has been added to the sales staff of the Air Preheater Corporation, 25 Broadway, New York.

—

H. F. Kluender, for several years connected with the Kinite Co., Milwaukee, has been appointed representative of the Ziv Steel & Wire Co., Chicago, in the Detroit district.

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Frank B. Ungar has been appointed assistant to the general manager of sales of the Ludlow-Saylor Wire Co., St. Louis, manufacturer of wire cloth and woven wire screens. He has been connected with the company's sales department for 26 years and prior to his recent advancement was Chicago representative.

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L. E. Fischer, St. Louis, consulting engineer in construction and operation of public utility and industrial engineering projects, has been appointed vice-president in charge of operation of the North American Light & Power Co., Chicago.

T. B. Buell, formerly of the New Process Gear Co., Syracuse, N. Y., has been made a sales engineer in the Eastern territory by the Sundstrand Machine Tool Co., Rockford, Ill., formerly the Rockford Milling Machine Co. and the Rockford Tool Co. His headquarters will be in Syracuse. L. A. Dumser, formerly with the Kearney & Trecker Corporation, Milwaukee, will serve the company in a similar capacity in its Mid-West territory, with headquarters in Milwaukee.

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A. V. Dye, New York, has been appointed commercial attaché of the Department of Commerce, at Buenos Aires, to succeed Edward L. Feely, resigned. He has been associated with the consular service and the Department of Commerce for a long period both in the United States and abroad, and was recently chief of the transportation division, Department of Commerce.

—

Milton Greenberger, associated for about 17 years with Theodore Geissman & Co., Chicago, is president of the newly organized Steel Mill Products Co., Monadnock Building, Chicago. The new company will act as sales representative for several steel mills.

—

L. E. Denman has been elected president and treasurer of the C. R. Talbott Co., Cincinnati. He succeeds C. R. Talbott, founder of the company, who died recently. Other officers are V. B. Talbott, vice-president, and C. E. Hillman, secretary. The company, which is the sales representative in Cincinnati territory of the Union Drawn Steel Co. and the Morris & Bailey Co., also conducts an iron and steel jobbing business.

—

Ralph C. Velte, general manager of sales Valley Mould & Iron Corporation, Sharpsville, Pa., recently was elected vice-president and will continue in charge of sales. He joined the company in 1919, when it absorbed the Marshall Foundry Co., Pittsburgh, with which he had been associated for a number of years.

—

John J. Moore, since 1918 general master mechanic, Torpedo Station, Newport, R. I., and in the Government service for 55 years, has retired.

—

Harold M. Graham, formerly with the Elliott Co., Pittsburgh, has been made chief engineer of the Ross Heater & Mfg. Co., Inc., Buffalo. He has done original work on heat transmission and was employed for some time in the condenser department of the Westinghouse Electric & Mfg. Co., East Pittsburgh.

—

G. O. Muhlfeld, of Stone & Webster, Inc., New York, has been elected a director of the American International Corporation, New York.

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Herbert H. Rogge, of the Westinghouse International Co., has been appointed representative of the company at Manila, P. I., and will have under his jurisdiction the Philippine Islands, Dutch East Indies, Siam and the Federated Malay States.

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Ross H. Rathbun, formerly in charge of the central station department of the Westinghouse Electric & Mfg. Co., with headquarters at Cleveland, has been appointed sales manager of the Ross Heater & Mfg. Co., Buffalo. For a number of years prior to 1916 he was chief engineer for the Madera Co., Ltd., in Mexico.

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B. A. Ployd has joined the sales organization of William L. Hoffman, 1504 West Venango Street, Philadelphia, steel jobber. Mr. Ployd was associated with Mr. Hoffman for eight years when the latter was district sales manager in Philadelphia for the Brier Hill Steel Co., and for the past few years has been connected with the Newton Steel Co.

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Ralph J. Stayman, for the past seven years Chicago district sales manager and also in charge of the Chicago warehouse of Jones & Laughlin Steel Corporation, has been appointed to the newly created position of general manager of warehouses. He will make his

headquarters at 311 Ross Street, Pittsburgh. Mr. Stayman has been with the Jones & Laughlin Steel Corporation since early in 1919, having previously been with Joseph T. Ryerson & Son, Inc., where he was advanced from the position of office boy in Chicago to manager of its Detroit warehouse. He left that position to go with the Jones & Laughlin Steel Corporation in Chicago, succeeding S. E. Hackett, who was Chicago district sales manager prior to his promotion to general manager of sales. Mr. Stayman will supervise the operation and sales of the warehouses located in Pittsburgh, Cincinnati, Memphis and Chicago.

—

Richard Sanderson, vice-president in charge of sales of the Standard Steel Works Co., Philadelphia, a subsidiary of the Baldwin Locomotive Works, has resigned and will engage in business as an automobile distributer at San Antonio, Tex. Mr. Sanderson has spent practically his entire business life in the employ of the Baldwin company and its subsidiary, having started as an apprentice mechanic in the Baldwin shops. For many years he was New York district sales manager for the Standard Steel Works Co. and a number of years ago was promoted to the sales managership with the title of vice-president.

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Henry D. Hibbard, Plainfield, N. J., who went abroad early in the summer to visit a number of iron and steel plants in England and France, will return to this country about Sept. 20.

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Ralph W. Clark, vice-president Pilling & Co., Inc., pig iron brokers, 11 Broadway, New York, will sail for Europe on the S. S. Volendam Aug. 28. He will be gone five weeks, and will visit Holland, France and Belgium.

—

T. L. Wilson, resident manager and salesman in the Chicago office of Hickman, Williams & Co., has tendered his resignation, to take effect Sept. 1.

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Homer D. Williams, president Pittsburgh Steel Co., Pittsburgh, sailed this week for a six weeks' trip to Europe.

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H. E. Lewis, vice-president Bethlehem Steel Corporation, who went abroad last month, will return early in September.

Exceptionally High Iron and Steel Output in France

PARIS, FRANCE, Aug. 6.—French iron and steel output in June and during the first six months of 1926 is shown in the table. Production of ingots and castings in June was the largest ever recorded for any month, having been 693,772 metric tons. Pig iron in June, at 777,928 tons, was somewhat below the May figure of 782,599 tons. For the first half-year, pig iron production showed a gain of 12 per cent over that of 1925, while steel production was 14 per cent above 1925.

	No. of Furnaces June 30	May 31
In blast	153	147
Out of blast	27	32
In construction or repair	37	39
	217	218

Pig Iron—Metric Tons	1926 June	1926 May	1926 First Half Year	1925 First Half Year
Basic	581,520	574,145	3,394,393	2,960,385
Foundry	151,124	162,744	880,273	801,397
Forge	28,959	28,011	174,921	201,498
Bessemer	1,133	1,133	10,201	24,812
Special	15,192	16,566	110,304	102,898
	777,928	782,599	4,570,092	4,090,990
Raw Steel				
Ingots	681,519	656,139	3,991,463	3,487,200
Castings	12,253	11,010	69,252	80,167
	693,772	667,149	4,060,715	3,567,367
According to Process				
Basic	484,514	459,989	2,797,066	2,453,253
Open-hearth	197,017	195,248	1,187,839	1,028,884
Bessemer	4,150	4,148	29,904	43,492
Electric	7,061	6,783	39,451	35,871
Crucible	1,030	981	6,455	5,867
	693,772	667,149	4,060,715	3,567,367

OBITUARY

GEORGE GREER, pioneer in industrial activities in the New Castle, Pa., district, died in a Baltimore hospital Aug. 19, following an operation. He was the organizer of the New Castle Tin Plate Co. which was later acquired by the American Tin Plate Co., and for a number of years was a director of La Belle Iron Works, Steubenville, Ohio. Recently Mr. Greer donated a pipe organ costing $65,000 to the new Scottish Rite cathedral, under construction in New Castle, as a memorial to his brother, Charles Greer, and himself. He was 83 years old.

—

CHARLES BARBOUR, manager Pittsburgh works, Standard Underground Cable Co., died in his home in Pittsburgh, Aug. 17. Born Dec. 3, 1855, in Manchester, England, he came to the United States in 1882, and located in Tarentum, Pa., where he entered the plate glass business. Later he was employed by the Pennsylvania Railroad and left that connection to engage in the tool manufacturing business with his brother. He became connected with the Standard Underground Cable Co. in 1890.

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ELDRIDGE W. HOTCHKISS, superintendent and a director of the Cleveland Malleable Iron Co. at the time it became a part of the National Malleable & Steel Castings Co., and formerly a director of the Eberhard Mfg. Co., Cleveland, died Aug. 16 at his home in Cleveland Heights, aged 82. He retired from active business in 1904.

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SAMUEL J. FEARING, formerly treasurer of the Railroad Iron Co., Olympia, Ky., died Aug. 17 at his home in Lexington, Ky. He was a graduate of the Worcester Polytechnic Institute, Worcester, Mass, Class of 1879, and had been engaged in the iron business in Kentucky for more than 40 years.

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F. S. KRETSINGER, chairman of the board of directors of the American Fork & Hoe Co., Cleveland, died at the Hotel Statler in that city, Aug. 22. He was formerly president of the American Fork & Hoe Co., retiring from active participation in the company's affairs in 1907 and removing to Evanston, Ill., where he has since resided. He was 83 years of age.

Wholesale Prices Considerably Lower

Commodity prices in July are reported by the Bureau of Labor Statistics at 150.7, which is the lowest figure since September, 1924—22 months. The average compares with 152.3 in June and with 159.9 in July of last year. The average for the first half of 1926 was 152.9, against 158.5 average prevailing throughout 1925.

As has been the case for several months, the group of metals and metal products is lowest of all the eight great groups of products. In July the figure, at 126.2, shows the first gain since last November, when it stood at 129.8. Month by month there have been small declines, until 125.1 was reached in June. A year ago the figure was 126.4, or almost precisely that of the latest month.

Fuels, clothing materials and building materials all remain above 171. Housefurnishing goods and foods also are above the average, while metals, farm products, chemicals and drugs, and miscellaneous items are below the average.

Wages in the automobile industry in 1925 show an average increase of 10 per cent over those of 1922, according to a survey recently completed by the Bureau of Labor Statistics. In 1925 men were receiving an average of 72.9c. per hr. and $36.67 per full-time week, which averaged 50.3 hr. Women in the same plants received an average of 46.7c. per hr., or $23.40 per week. The average full-time hours had increased from 50.1 in 1922.

Machinery Markets and News of the Works

LARGE LIST IN CHICAGO

Pullman Car & Mfg. Corporation Inquires for More Than 30 Items

Cleveland Board of Education Has Taken Bids on About 40 Machines for Manual Training Schools

ALTHOUGH there has been a lull in machine tool buying in some of the industrial centers, the outlook for autumn continues to be regarded hopefully, and the volume of inquiry bears out to some extent the expectations of better business as soon as the summer vacation period is over. Sales this month have fallen off in nearly all markets, but several machine tool builders report that their orders so far this month indicate that the total by Sept. 1 may exceed July business. Orders taken by a Cleveland maker of turret lathes show a decided gain over last month.

Outstanding among new inquiries is that of the Pullman Car & Mfg. Corporation for new shops at Atlanta, Ga. More than 30 items are on the list. The New York Central Railroad, which has been a steady buyer throughout the year, has issued new inquiries for about 15 to 20 tools for various shops. Purchases have been made by the Southern Railway for a shop at Chattanooga, Tenn., and by the New York, New Haven & Hartford. Railroad buying generally has shown improvement.

Some of the automobile manufacturers are more active buyers and are asking for early deliveries in order to speed up production of new models, for which the demand is said to have exceeded expectations. The Nash Motors is figuring on additional equipment for its plant at Racine, Wis.

A typewriter plant at Ilion, N. Y., has bought five Lincoln-type milling machines. A Jersey City, N. J., company bought a 124-in. gate shear.

The Gray & Davis Corporation, Cambridge, Mass., will offer a considerable quantity of used machine tool equipment at public sale on Sept. 2.

New York

NEW YORK, Aug. 24.

RAILROAD buying and inquiry have been the only new features of the local machine tool market in the past week. The New York Central Railroad, a fairly consistent buyer of tools all year, has issued new inquiries for about 15 to 20 tools for various shops. The New York, New Haven & Hartford has bought a number of tools, and some orders have been sent out by the Southern Railway for a new shop at Chattanooga, Tenn.

Among the orders received during the week were the following: Engine lathe, 36 in. x 12 ft., from a Pittsburgh tube company; engine lathe, 48 in. x 28 ft., from a forge company in the Pittsburgh district; 124-in. gate shear from a Jersey City company; bench lathes from two companies in Los Angeles and one in Newark, N. J.; automatic milling machine from a magneto manufacturer at Sidney, N. Y.; also an automatic milling machine for a forge company in St. Louis; a typewriter manufacturer at Ilion, N. Y., bought five Lincoln-type milling machines; a pattern works in Detroit bought two vertical surface grinders; three companies bought jig borers, one in Cincinnati, one at Swissvale, Pa., and one at Windsor, Vt.; a Garwood, N. J., manufacturer bought a centering machine; an electrical company in Buffalo a 13-in. geared head lathe; a Boston company, a 16-in. geared head lathe; a Detroit motor company, a die sinking machine, and a Brooklyn company, a bench lathe.

The Segal Lock & Hardware Co., 155 Leonard Street, New York, has acquired a block of property in Brooklyn, bounded by Ferris, Sullivan and Walcott Streets, improved in part with two factory buildings, machine shop and foundry, providing a total floor space of about 160,000 sq. ft. Plans have been arranged for the early construction of three additional structures to cost approximately $450,000. The company will concentrate and expand its works at this location; early next March, when new structures and improvements are slated for completion, it is purposed to remove two existing plants in Connecticut to the Brooklyn site, and likewise remove warehouses and distributing plants now in New York to that location. The company has also purchased a group of dwellings in this vicinity and plans a housing development for employees. It is expected to maintain a working force of more than 500 persons at the new plant.

The Neptune Meter Co., 50 East Forty-second Street, New York, manufacturer of water meters, has awarded a general contract to the C. Curtis Woodruff Co., 213 Tenth Avenue, Long Island City, for a three-story plant on Davis Street, Long Island City, to be 40 x 42 ft., with one-story wing, 42 x 125 ft., estimated to cost approximately $125,000 with equipment. W. W. Knowles, Electric Building, Long Island City, is architect.

The M. O'Neill Supply Co., 25 Cliff Street, New York, iron pipe, fittings, etc., has begun the erection of a two-story plant on Flushing Avenue, near Onderdonk Avenue, Queens, L. I., 75 x 175 ft. A pipe shop and storage shed, 100 x 300 ft., will also be built. The Ballinger Co., 100 East Forty-second Street, New York, is architect and engineer.

The Board of Trustees, State Institute of Applied Agriculture, Farmingdale, N. Y., is asking bids until Sept. 10 for an air compressor and accessories. Specifications go to the office of the State Department of Architecture, Capitol Building, Albany, and Flatiron Building, New York.

Fischer Brothers, 5 East 137th Street, New York, manufacturers of store fixtures, office furniture, etc., have leased space in the building at 1 West 139th Street and will equip for a new plant.

The St. John Power Co., St. John, N. B., operated by the International Paper Co., 100 East Forty-second Street, New York, will begin the construction of a hydroelectric generating plant on the St. John River, near Grand Falls, N. B. The ultimate plant will consist of three 20,000 hp. units, and will cost in excess of $10,000,000, with power transmission system. The station will be used for service at two paper mills projected by the parent company in this same section. A. R. Graustein is head of both organizations.

The Remington Noiseless Typewriter Corporation, 374 Broadway, New York, has called a special meeting of stockholders on Sept. 16 to approve an increase in capital from 75,000 to 125,000 shares of stock, no par value, and the sale of 25,500 shares of the additional stock at $35 per share, a portion of the proceeds, totaling $892,500, to be used for expansion.

Harry Hanson, New York, care of Eugene A. Walsh, 81 East 125th Street, real estate, has leased property at the foot of Manida Street and Ryawa Avenue, fronting on the East River, 150 x 394 ft., for the establishment of a new

plant for the manufacture of motor boats. A complete repair and reconditioning department will also be installed.

K. L. Comstock & Co., 21 East Fortieth Street, New York, electrical and constructing engineers, have had plans drawn for a twelve-story factory at 753 Eleventh Avenue, 70 x 75 ft., estimated to cost $750,000. J. M. Felson, 250 West Fifty-seventh Street, is architect.

The Packard Motor Car Co. of New York, Broadway and Sixty-first Street, has engaged Albert Kahn, Marquette Building, Detroit, architect, to prepare plans for a proposed seven-story service and repair building, 200 x 225 ft., on site recently purchased on Eleventh Avenue, between Forty-fourth and Forty-fifth Streets, estimated to cost more than $1,500,000 with equipment. The new station will be one of several similar units to be established in connection with an expansion program in the New York district.

The New York Edison Co., Irving Place and Fifteenth Street, New York, has taken out a permit to erect a three-story power distributing station, 75 x 90 ft., at 441-45 West Forty-third Street, estimated to cost $600,000 with equipment. William Whitehill, 709 Sixth Avenue, is architect.

The Board of Sewer Commissioners, Sewer District No. 1, Mamaroneck, N. Y., is asking bids until Sept. 7 for a pumping plant and equipment. A. J. Foote, Hillside Arcade, Larchmont, N. Y., is engineer.

The machinery and property of M. E. Davis, Lincoln, N. J., railroad and contractors' supplies and machinery, comprising traveling cranes, steam shovels, drills, air compressors, machine tools, etc., will be sold at public auction on site Aug. 30.

The Borough Council, Mountain Lakes, N. J., plans the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks. A fund of $100,000 is being arranged for the project.

The Elizabeth Foundry Co., 712 Princeton Avenue, Elizabeth, N. J., has filed plans for a one-story foundry addition.

The Bayway Terminal, South Front Street, Elizabeth, N. J., has concluded arrangements with the New York Cotton Exchange, 60 Beaver Street, New York, for the construction of additional storage and distributing buildings, with complete mechanical handling facilities, estimated to cost $5,000,000. With a present capacity for handling 60,000 bales of cotton, the contract calls for extension in these facilities to accommodate 100,000 bales within six months, and 200,000 bales by October, 1927. Plans will soon be drawn.

The Public Service Railway Co., Public Service Terminal, Newark, N. J., has awarded a general contract to the Wilhelms Construction Co., 119 Division Street, Elizabeth, N. J., for a motor bus service, repair and garage building on Livingston Street, near Davega Street, Elizabeth. It will be one story, 100 x 320 ft., to cost approximately $150,000 with equipment.

The Chuspurdy Auto Coach Works, New York, manufacturer of automobile bodies, has leased space in the building at 444 West Forty-fifth Street, comprising about 10,000 ft. of floor space, and will occupy for a new plant.

The New York office of the Bridgeport Brass Co. has been moved from the Pershing Square Building to the Farmers' Loan & Trust Co. Building, Suite 407, Fifth Avenue and Forty-first Street.

The Atlantic Gas Process Corporation, Room 1104, 115 Broadway, New York City, has been incorporated and controls patents for a process and apparatus for the manufacture of coal gas. It is the purpose of the company to license the process to public utilities and industrial corporations. J. L. Murrie, consulting engineer, is president.

The National Oven Co., Grand Central Terminal, New York, is in the market for a used 8-ft., No. 10 gage power squaring shear or 4-ft., No. 10 gage squaring shear with gap; also an 8-ft., No. 10 gage power brake.

Buffalo

BUFFALO, Aug. 23.

PRELIMINARY plans are being prepared for the Continental Can Co., Syracuse, N. Y., for a two-story and basement addition, 75 x 180 ft., estimated to cost about $150,000, with equipment. Francisco & Jacobus, 511 Fifth Avenue, New York, are architects.

The Unit Parts Rochester Corporation, Rochester, N. Y., has been organized with a capital of $60,000 and 2400 shares of common stock, no par value, to take over and consolidate the F. Dean Russell Co., and the Miller-Babcock Spring Service Co., both of Rochester, manufacturers of automobile equipment. The consolidated organization plans for expansion for increased output. It is headed by F. D. and E. W. Russell.

Samuel C. Rogers & Co., 10 Lock Street, Buffalo, manufacturer of knife grinders, etc., will soon ask bids on general contract for a one-story addition, 80 x 130 ft., at 201 Dutton Street, to cost approximately $35,000, with equipment. C. M. Wolfe, 1377 Main Street, is architect.

The Salisbury Axle Co., Jamestown, N. Y., has closed a contract with the Marmon Motor Car Co., Indianapolis, for front and rear axle requirements over a period of months, with total order aggregating $2,000,000. The Salisbury company plans to develop production to maximum with increased working force. Carl M. Kaltwasser is vice-president and general manager; Frederick P. Hall, Jr., is chief engineer.

The Board of Contract and Supply Co., City Hall, Syracuse, N. Y., has awarded a general contract to the Shane Construction Co., Herald Building, for a one-story and basement municipal automobile service, repair and garage building, 75 x 435 ft., at South Beech and East Water Streets, for city motor trucks and cars, estimated to cost $110,000. Nelson F. Pitts, City Hall, is city engineer.

Philadelphia

PHILADELPHIA, Aug. 23.

PLANS are being prepared by the Philadelphia Gear Works, Richmond and Tioga Streets, Philadelphia, for a two-story addition, estimated to cost $150,000, with equipment. Horace W. Castor, Stephen Girard Building, is architect. Russell C. Ball is president and treasurer.

The Otto Engine Works, Thirty-third and Walnut Streets, Philadelphia, has awarded a general contract to the William Steele & Sons Co., 219 North Broad Street, for a new plant at the State Road and Rhawn Street, estimated to cost $75,000, with equipment.

The Richard de Cou Co., Eleventh and Hamilton Streets, Philadelphia, jobber of structural steel shapes and other iron and steel products, has acquired adjoining property at Twelfth and Hamilton Streets, consisting of a five-story and basement factory, for a reported consideration of $150,000, and will use for expansion. The purchasing company now owns the entire block of property bounded by Eleventh, Twelfth, Hamilton and Noble Streets.

The F. Wesel Mfg. Co., 72 Cranberry Street, Brooklyn, manufacturer of photo-engraving and stereotyping equipment, printers' supplies, etc., is perfecting plans for the early establishment of a new plant at Scranton, Pa., to cost in excess of $100,000, with machinery.

The School Board, Gloucester City, N. J., plans the installation of manual training equipment in its proposed three-story, 35-room high school at Cumberland and Joy Streets, estimated to cost $275,000, for which bids have been asked on general contract. Edwards & Green, 548 Federal Street, Camden, N. J., are architects.

The Thomas Devlin Mfg. Co., Third Street and Lehigh Avenue, Philadelphia, manufacturer of hardware specialties, operated by S. S. Fretz, Jr. & Co., Twenty-third Street and Sedgley Avenue, manufacturer of steam fitters' and plumbing equipment, has awarded a general contract to the Austin Co., Jefferson Building, for a one and two-story addition to its plant at Burlington, N. J., 42 x 100 ft., and 50 x 175 ft., respectively, to be used as a metal galvanizing plant and machine shop, respectively, estimated to cost approximately $100,000, with machinery.

In connection with the addition now being constructed at its repair shops at Weatherly, Pa., designed as a frog shop, the Lehigh Valley Railroad Co., plans to use a portion of the structure for the reclamation of rail splices, and will install new equipment for this service. Executive offices are at 143 Liberty Street, New York.

The Wilkes-Barre School District, 81 North Washington Street, Wilkes-Barre, Pa., plans the installation of manual training equipment in its proposed three-story and basement senior and junior high school on Carey Avenue, estimated to cost $1,000,000, for which Robert Ireland, school district address noted, architect, is preparing plans.

The Buck Mountain Coal Mining Co., Gowen, near Hazleton, Pa., has arranged for a bond issue of $400,000, the proceeds to be used for the construction of a modern steel breaker and the installation of additional mining machinery at its properties. The expansion will include the electrification of the plant.

The Evans Colliery Co., Hazleton, Pa., has plans for a one-story forge shop and woodworking plant at its local properties, reported to cost about $25,000, and will proceed with superstructure at an early date.

The Kuhlman Electric Co., Bay City, Mich., manufacturer of power, distribution and street lighting transformers, announces the appointment of H. F. Darby, Jr., 1700 Walnut Street, Philadelphia as direct factory representative in the Philadelphia district. For more than 20 years, Mr. Darby was with the Cutter Electrical & Mfg. Co., and during the last six years he was sales manager of that organization.

The Crane Market

THERE is a fair volume of current inquiry for both overhead and locomotive cranes, but prospective purchasers are slow to close business. Award of the 24 cranes for the Coney Island shops of the New York Transit Corporation, Brooklyn, N. Y., has finally been made to Alfred Box & Co. Among pending inquiries are those of the New York Steam Corporation, handled by Thomas E. Murray, 55 Duane Street, New York, and the three cranes for the American Sugar Refining Co., Brooklyn, handled by Stone & Webster, Inc. No action is yet reported on the inquiry of the Worthington Pump & Machinery Corporation for a 30-ton overhead crane. The George Haiss Mfg. Co., New York, is reported about to close on a 5-ton, 10-ft. span electric crane with low headroom. Among locomotive crane inquiries are the two 25-ton cranes for the New York Central Railroad.

Among recent purchases are:

New York Edison Co., through Thomas E. Murray, New York, an overhead track installation for East Fourteenth Street, including thirteen 5-ton and 10-ton geared trolley hoists from the Chisholm-Moore Mfg. Co.

De Mattia Brothers, Garfield, N. J., a used 5-ton Northern and a used 2½-ton Shepard overhead electric cranes from an unnamed seller.

Wilputte Coke Oven Co., 469 Fifth Avenue, New York, a 25-ton locomotive crane from the Browning Crane Co.

Royal Iron Works, 796 East 133rd Street, New York, a 5-ton, 41-ft. span, 3-motor overhead traveling crane from the Northern Engineering Works.

Frederick Snare Corporation, 114 Liberty Street, New York, three combination crane and steam shovels reported purchased from the Koehring Co.

McClintic-Marshall Co., Rankin, Pa., a 10-ton trolley from an unnamed builder.

The Montgomery Iron & Steel Co., Philadelphia, has moved its offices from 918 West Berks Street to 2500 Duncan Street, Frankford, Philadelphia, where it is occupying a new plant. The company will also continue to fabricate structural steel at the plant located at Ninth and Berks Streets until the entire plant is moved to the new location, which will be about Oct. 15.

Alfred Box & Co., Inc., Philadelphia, has changed its name to the Box Crane & Hoist Corporation. There has been no change in the personnel or financial structure and the company will continue to manufacture hand traveling, electric traveling, grab bucket, jib and special cranes. The officers are: H. L. Winterer, president; F. J. Winterer, treasurer and general manager, and G. A. Mitchell, secretary and sales manager.

New England

BOSTON, Aug. 24.

THE past week brought further seasonable contraction in machine tool business. As during the previous week, used tools are enjoying a broader market than new. There are, however, sufficient new tool inquiries to insure activity in the closing months of 1926. It is anticipated that the sale of the Gray & Davis Corporation used equipment in Cambridge, Mass., on Sept. 2 will affect the used tool market, for the time being, at least. Two New England railroads are inquiring for a limited amount of fairly expensive new shop equipment. Sales reported recently have been of single tools. They include one new upright drill, one used upright drill, one new motor-driven grinding machine, one 15 x 6 lathe, one used portable drill, one used 16-in. lathe, one new 16-in. model B Pratt & Whitney lathe, one used power press, one five spindle drill and one fine tool grinder.

Preliminary work has started on a new rolling mill for the American Steel & Wire Co., Worcester, Mass., to cost about $1,000,000. A. F. Backlin, Cleveland, is the consulting engineer.

Plans are in progress for a one-story manufacturing plant for the Thomson Electric Welding Co., 61 Pleasant Street, Lynn, Mass. Haven & Hopkins, 11 Beacon Street, Boston, are the engineers.

Work is about to be started on a two-story, 50 x 96-ft. manufacturing plant for the Crown Sheet Metal Works, 116 Bank Street, New London, Conn. Francis Des Grange, 60 Ocean Avenue, New London, is the architect.

The Transit Commission, Boston, is having plans prepared for an $800,000 power house to be erected at Harrison Square, Dorchester. A. D. Adair, 1 Beacon Street, commissioner, is supervising the plans. Ernest R. Springer, same address, is the engineer.

On Thursday, Sept. 2, the mechanical equipment of the Gray & Davis Corporation, Memorial Drive, Cambridge, Mass., will be sold at public auction. The list of machines, etc., includes lathes, shapers, milling machines, grinders, automatic screw machines, drill presses, planers, power presses, air compressors, nickel plating outfit, belting, shafting and small tools.

Directors of the New Haven Gas Light Co., New Haven, Conn., have approved the sale of the plant to the Koppers Co. The prospective buyer plans to make improvements.

Plans for the Sikorsky Mfg. Co., airplanes, to occupy a part of the Springfield Body Corporation, West Springfield, Mass., plant for manufacturing purposes have fallen through as the town has bid in the property for taxes.

Stockholders of the Kilburn-Lincoln Machine Co., Fall River Mass., textile machinery, have voted to liquidate. Upon the sale of the assets, including metal working equipment, the company will be dissolved. No bids have been received for the purchase of the plant or property.

The Arrow Electric Co., 103 Hawthorne Street, Hartford, Conn., manufacturer of switches and other electrical specialties, has tentative plans for an addition to cost close to $50,000 with equipment.

The International Silver Co., Meriden, Conn., has plans for an addition to its plant at Northampton, Mass., to be equipped primarily for metal-hardening service, estimated to cost about $45,000 with machinery.

The Atlas Sheet Metal Works, Woonsocket, R. I., has removed its plant to larger quarters at 828-30 Eddy Street, where additional facilities will be provided for larger output. Gustave T. Kollen is president and treasurer.

The New York, New Haven & Hartford Railroad Co., New Haven, Conn., has secured permission to construct a power dam on the Mianus River, near Greenwich, Conn., estimated to cost $600,000, to be used in connection with its electric generating plant at Cos Cob, Conn. Work will soon begin.

Following a recent bond issue of $5,500,000, the Derby Gas & Electric Co., Derby, Conn., recently organized to take over and consolidate the Derby Gas & Electric Co. and the Wallingford Gas Co., Wallingford, Conn., is disposing of a preferred stock issue to total $1,440,000, a portion of the proceeds to be used for expansion. H. L. Clarke is president.

South Atlantic States

BALTIMORE, Aug. 23.

THE Black & Decker Mfg. Co., Pennsylvania Avenue, Towson, Baltimore, manufacturer of electric drills, grinders, etc., has engaged George Mackenzie, 115 Guilford Avenue, architect, to prepare plans for a one-story machine shop addition, 100 x 200 ft., estimated to cost close to $80,000, with equipment.

The City Council, Fredericksburg, Va., plans the installation of pumping equipment in connection with the proposed installation of a municipal waterworks. A special election has been called on Sept. 9, to approve bonds for $100,000, for the project.

The Board of District Commissioners, District Building, Washington, is asking bids until Sept. 10, for cast iron lamp posts and fittings.

The Virginia Electric & Power Co., Richmond, Va., is perfecting arrangements for the acquisition of the motor bus system of the Richmond Rapid Transit Corporation for a consideration of $500,000. An additional fund of $1,000,000 is being arranged for extensions and betterments, including service, repair and garage buildings, and coordinated motor bus and street railroad improvements.

The City Council, Bladenboro, N. C., plans the installation of pumping machinery in connection with the installation of a municipal waterworks, for which a fund of $60,000, has been authorized. The J. B. McCrary Co., Atlanta, Ga., are engineers.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a motor-gener-

ator set, 3500 kw. capacity, bleeder type turbo-generator unit; for one 10-ton road roller, 3-wheel type, steam or gas-operated; for a quantity of 1-in. diameter steel cable, and quantity of wire cable; for one motor-driven arc welder, Lincoln or similar type; for one steel stack, about 84 in. diameter, and from 175 to 200 ft. high, guyed or self-supporting; and for a number of electric motors, 25 and 60 hp.

The Common Council, Laurens, S. C., plans the installation of pumping equipment in connection with a proposed municipal waterworks, estimated to cost $80,000. Bids are expected to be asked at early date.

The Denmark Wood Products Co., Denmark, S. C., is planning the early purchase of a 100 to 125 kw. generator, with engine, exciter and auxiliary equipment, for installation at its plant.

The Seaboard Air Line Railway Co., Savannah, Ga., has tentative plans under way for extensions in its locomotive repair shops at Hamlet, N. C., to be used largely for machine work and parts production, reported to cost in excess of $50,000, with equipment. W. D. Faucette, Savannah, is chief engineer.

The Spartanburg County Board of Education, Spartanburg, S. C., contemplates the installation of manual training equipment in a new high school at Duncan, S. C., reported to cost $110,000. Paul Williams, Spartanburg, is architect.

The American Oil Co., Hanover Street, Baltimore, has authorized plans for the rebuilding of the portion of its storage and distributing plant recently destroyed by fire with loss reported at close to $400,000, including tanks and other mechanical equipment.

The Aulander Cabinet Co., Aulander, N. C., is planning to place a quantity of metal-stamping work in an outside shop, and is desirous of getting in touch with plants of this character.

The Bird-Potts Co., Inc., 373 Marietta Street, Atlanta, Ga., has bought a large tract of land on South Pryor Street and will soon begin the erection of the first unit of a large welding plant. The first unit will have a frontage of 140 ft. on South Pryor Street, will be of fireproof construction, and will have every convenience of a modern welding plant with special attention to ventilating and lighting features. The company will also manufacture several articles in its new plant; among these will be a steel steam cooker for cottonseed oil, soaps and foodstuffs and a new and improved steel boiler furnace for use in heating homes. Principals are George Bird, president and treasurer, and William B. Potts, vice-president and secretary. Mr. Bird is vice-president of the American Welding Society, is a pioneer in the welding field, having taken up the work 38 years ago.

Detroit

DETROIT, Aug. 23.

CONTRACT has been let by the Continental Tool Co., McGraw Street, Detroit, to the Austin Co. for a one-story machine shop, 110 x 250 ft., estimated to cost $100,000 with equipment. S. F. Wall is president.

The City Council, Marshall, Mich., plans extensions in the municipal electric light and power plant, including the installation of a Diesel engine and auxiliary equipment.

The L. A. Young Industries, Inc., 9200 Russell Street, Detroit, manufacturer of automobile equipment, has plans for a new one-story power plant at its factory to cost close to $125,000 with equipment. L. A. Young is president.

The General Motors Corporation, General Motors Building, Detroit, has tentative plans under way for a new three-story school of technology at Flint, Mich., to be used for instruction of employees at local plants of the Buick Motor Co. and the Oakland Motor Car Co., subsidiary organizations, as well as for operatives at other company works. It is estimated to cost approximately $400,000, with mechanical, electrical and other engineering equipment.

The Electric Refrigeration Corporation, Buhl Building, Detroit, has engaged Smith, Hinchman & Grylls, Marquette Building, architects, to prepare plans for a three and four-story plant, 440 x 640 ft., on the Plymouth Road. The entire project is expected to cost approximately $2,000,000. The company represents a merger of the Kelvinator Co. and the Nizer Corporation, both specializing in the manufacture of electric refrigerating equipment. A. H. Goss is president.

The Pressed Metals of America, Inc., Port Huron, Mich., is being organized to take over and consolidate the American Bushings Corporation, Port Huron, with main plant at Marysville, Mich., and the Pressed Metals Co. of Canada, Ltd.

The Northern Electric Co., an interest of the Northern Paper Mills, Inc., Green Bay, Wis., has arranged for a bond issue of $3,000,000, a considerable portion of the proceeds to be used for a hydroelectric power development, comprising two individual operating units, in the Michigan Peninsula district, on the Menominee River. Judson G. Rosebush is president.

The Detroit Brass & Malleable Works, Malleable Division, Wyandotte, Mich., is in the market for equipment for a new hot-dip galvanizing plant to handle pipe fittings, both malleable and gray iron, up to 6 in. sizes. A. Dugrey is general superintendent.

Hausman & Wimmer Co., dealing in iron, steel and scrap, First National Bank Building, Pittsburgh, has opened a branch office at 1133-34 Book Building, Detroit, in charge of Fred W. Wimmer and Herman Golanty.

The Flint Structural Steel Co., Flint, Mich., is in the market for a used double angle shear.

The Common Council, Utica, Mich., plans the construction of a pumping plant. Bonds for $250,000 have been voted for this project.

The Common Council, Lincoln Park, Mich., plans the installation of pumping equipment in connection with proposed extensions and improvements in the municipal water plant. A bond issue of $345,000 has been approved for this project.

Chicago

CHICAGO, Aug. 23.

SALES of machine tools in the Chicago district continue to taper off and dealers now have little hopes that August will average above the same month a year ago. Fresh inquiry is also light and propositions now before the trade are in small volume as compared to the last week in July. The Rock Island bought a No. 4 universal milling machine with attachments for its Silvis, Ill., shops. The Nash Motors Co. is figuring on additional tools for its Racine, Wis., plant.

The Pullman Car & Mfg. Corporation has issued a list for its new shops at Atlanta, Ga. Quotations are to cover delivery to Atlanta and motor equipment for 440 volts, 60 cycle and 3 phase current.

The Pullman list is as follows:
One turret lathe, capacity 1½-in. round.
One 18-in. x 8-ft. geared head engine lathe.
Three sensitive drill presses, ½-in. drill.
One back-geared engine lathe, 14-in. x 8-ft.
One medium duty engine lathe, 16-in. x 16-ft.
One medium duty engine lathe, 24-in. x 16-ft.
One medium duty engine lathe, 16-in. x 8-ft.
One plain No. 3 miller.
One universal cutter grinder.
One 30-in. x 30-in. x 10-ft. open side planer.
One power hack saw, 9-in.
One medium duty crank shaper, 24-in.
One 4-ft. radial drill.
Two 20-in. upright drill presses.
Four double emery wheels, 14-in. x 2-in.
Two double buffing wheel stands, 48-in. to 45-in., speed 2400 r.p.m.
One bench hand saw.
One 1½-in. bolt threading machine.
One single spindle bolt threading machine, 1½-in.
One squaring shear, ¼-in. x 10-ft., 12-in. throat.
One pipe cutter, 2½-in. to 3-in.
One double head pipe threader, ¼-in. to 2-in.
One single spindle pipe threader, ¼-in. to 2-in.
One 2-in. pipe bending machine.
One metal band saw, for ⅛-in. thick material.
One combination punch and shear, ⅞-in. hole and ¾-in. plate.
One 2-in. valve grinding machine.

The Overhead Door Co., 8066 South Chicago Avenue, Chicago, has awarded a general contract to Van Setten Brothers, Inc., 11016 Michigan Avenue, Chicago, for a two-story plant, 50 x 132 ft., to cost $25,000.

The Crane Co., 826 South Michigan Avenue, Chicago, has asked bids on a general contract for a one-story factory branch and distributing plant, 66 x 132 ft., at Aurora, Ill., to cost $75,000.

The Federal Rubber Co., Cudahy, Wis., a subsidiary of the Fisk Rubber Co., Chicopee Falls, Mass., has awarded contracts for the construction of a six-story extension, 66 x 286 ft., to cost $300,000 with equipment. G. P. Allen, 250 West Fifty-seventh Street, New York, is chief engineer.

The Duston Auto Spring Mfg. Co., 2441 West Forty-eighth Street, Chicago, will build a one-story brick factory, 55 x 120 ft., to cost $14,000. Allis Gliatte, Cicero, Ill., is architect.

The Squire-Dingee Co., 1920 Elston Avenue, Chicago, will build a one-story concrete boiler house, 48 x 72 ft., to cost $45,000. W. C. Bennett, 111 West Jackson Boulevard, is architect.

The Marshall & Huschart Machinery Co., which formerly maintained offices and a display room at 17 South Jefferson Street, Chicago, moved its offices Aug. 23 to the first floor of the Sharples Building, 571 Washington Boulevard, at Jefferson Street, Chicago.

The Raymond Brothers Impact Pulverizer Co., 1319 North Branch Street, Chicago, manufacturer of pulverizing machinery, has awarded a contract to the Leonard Construction Co., 37 South Wabash Avenue, for a new one-story machine shop, 100 x 250 ft., to cost close to $100,000 including equipment.

The Fansteel Products Co., North Chicago, will soon begin the construction of a new two-story and basement plant, 100 x 100 ft., on State Street, North Chicago, to cost approximately $80,000 with equipment. Frank D. Chase, Inc., 720 North Michigan Avenue, Chicago, is architect and engineer.

The Board of Education, Mapleton, Iowa, has plans under way for a manual training building at the local high school. A bond issue has been authorized.

The City Council, Maddock, N. D., has plans under way for the construction of a municipal electric light and power plant. Estimates of cost are being made.

The Board of Education, Minneapolis, Minn., is said to be considering the installation of a manual training department in its proposed two-story and basement junior high school at Forty-fourth and Morgan Avenues, estimated to cost about $200,000.

The Chicago, Milwaukee & St. Paul Railroad Co. will soon proceed with the construction of a new steam-operated electric power plant at Channing, Mich., to cost about $55,000.

The Northern Machinery Co., Minneapolis, Minn., is now representing the Cleveland Planer Co., Cleveland, exclusively, in the sale of Cleveland open-side planers in Minnesota and western Wisconsin.

Holcroft & Co., Detroit, manufacturer of heat treating furnaces, has opened a branch office at 802 Putnam Building, 10 North Clark Street, Chicago, with C. H. Martin as district sales manager.

The Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, manufacturer of pneumatic and electric tools, vacuum pumps, compressors and engines, will open a new building on Iron Street, near Thirty-seventh Street, in the Central manufacturing district, Chicago, on Oct. 1. The building will house the Chicago sales and service branch. A loading platform, adjacent to the Chicago Junction Railway, will accommodate the loading of two freight cars. Loading doors for trucks have also been provided.

The Western Charcoal Co., 616 South Michigan Avenue, Chicago, has been appointed exclusive charcoal sales agents for several Middle West manufacturers, and now represents the following charcoal manufacturers: Thomas Berry Chemical Co., Manistique, Mich.; Charles T. Clark, Bay City, Mich.; Cliffs Chemical Co., Goodman, Wis.; Hackley-Phelps-Bonnell Co., Phelps, Wis.; Forest Products Chemical Co., Memphis, Tenn., and Cummer-Diggins Co., Cadillac, Mich.

The Donahue Steel Products Co., 1147 South Washtenaw Avenue, Chicago, is in the market for a 1-in. and a 1½-in. Acme upsetters.

Cleveland

CLEVELAND, Aug. 23.

MACHINE tool business with Cleveland dealers is very dull, but probably no more so than is usual in August. The Cleveland Board of Education has taken bids on about 40 tools and various other equipment for a new manual training department in the Eagle School and for supplemental equipment in other manual training schools. Reports from Detroit indicate that very few machinery orders have been placed by the automobile industry in that territory this month.

While business generally is not as good as in July, orders taken by a Cleveland manufacturer of turret lathes this month show a decided gain over July. These are well scattered and mostly in single machines. The Cleveland Planer Co., Cleveland, has sold a 30-in. x 30-in. x 8-ft. open side planer to the Bethlehem Foundry & Machine Co., Bethlehem, Pa. Among other orders was one for a 7-ft. radial drill purchased by the Cleveland Punch & Shear Works Co.

The Cleveland Board of Education received bids Aug. 23 for the following machinery equipment for various manual training schools:

Four 11-in. lathes.
Six 14-in. tool room lathes.
One speed lathe, 4-ft. bed.
Six speed lathes, 7-ft. bed.
One universal milling machine.
One single cylinder 24-in. surfacer.
Two 16-in. crank shapers.
Five bench saws.
One straightening press.
One arbor press.
One 6-in. x 6-in. high speed metal saw.
One crucible furnace.
One forge
One tool room furnace.
One drill grinder.
One floor grinder.
One universal tool grinder.
Two sensitive drill presses.
One 20-in. drill press.
One bench grinder.
One 4-in. jointer.

The Glen L. Martin Co., 16800 St. Clair Avenue, Cleveland, manufacturer of airplanes, has placed a contract with the Austin Co. for a one-story, 80 x 100-ft. factory addition.

The Cleveland Railway Co., Cleveland, is preparing plans for two one-story, 100 x 175-ft. repair shops, one to be located at West 117th Street and the other at East 140th Street and Hayden Avenue. David W. Morrow, 4500 Euclid Avenue, is architect.

The Barberton Foundry Co., Barberton, Ohio, is preparing plans for a new foundry.

The Monarch Mfg. Co., Toledo, Ohio, plans shortly to rebuild its plant at Front and Randolph Streets, which was recently destroyed by fire. Fred Searle is president.

The J. W. Ladd Co., Cleveland, manufacturer of dairy supplies, has placed a contract with the Austin Co. for a 50 x 130-ft. factory and warehouse to be located at 1615 East Twenty-fifth Street.

The Reliance Electric & Engineering Co., Cleveland, has placed a contract with the Austin Co. for a two-story addition, 40 x 82 ft.

Holcroft & Co., Detroit, manufacturer of heat treating furnaces, has opened a sales office at 405 Sloan Building, Cleveland, with H. M. Smith as district manager.

Milwaukee

MILWAUKEE, Aug. 23.

NEW business is being booked in satisfactory volume by local machine tool builders, some of the principal interests in the automotive industries being especially active in the direction of procuring new equipment in the shortest time possible to step up production programs. The local trade is much interested in the announcement that the Federal Court has authorized the receivers of the Chicago, Milwaukee & St. Paul Railroad to expend $92,000 for replacing and adding to the equipment of the West Milwaukee car and locomotive construction and repair shops. It has been a number of years since these shops, constituting one of the largest groups on the system, have been able to do any retooling of importance. Foundries and machine shops generally are operating at the peak point of the present year and continue to make complaint of a shortage of skilled labor. General employment averages five per cent above a year ago, and this is due to a large extent to the state of activity in the metal trades.

The Milwaukee Central Board of Purchases, City Hall, closed bids today on one motor-driven lathe for the new Municipal Service Building at Sixteenth and Canal Streets. Considerable new equipment is required for this unit, and purchases are being made from time to time in single items or small lots. R. E. Stoelting is commissioner of public works.

The Specialty Machine Co., Wauwatosa, Wis., is a new corporation with $25,000 capital stock, organized by the principal owners of the Joyland Mfg. Co., 4000 Fond du Lac Avenue, Milwaukee, manufacturer of metal toys, playground apparatus, etc. The new concern will manufacture a general line of machinery specialties for its own use and the commercial market. Principals are Herman Jung, president, and William H. Berssenbrugge, secretary-treasurer, Joyland company, and Charles Kunkel, 3720 Galena Street, Milwaukee.

The Kelly Safety Gate Co., Manitowoc, Wis., has been incorporated with a capital stock of $40,000 to engage in the manufacture of a general line of safety devices, including street and road signals, railroad crossing gates, etc. The principals are J. M. Kelly, Leo G. Murphy and J. G. Garey, all of Manitowoc. A plant has been leased and equipment is being purchased.

The Keno Art Sign Co., Kenosha, Wis., has been organized by P. C. Lund, H. T. Anderson and B. H. Hamersten, all of Chicago, to manufacture metal signs, enameled goods, display stands, etc. Headquarters have been established at 155 Wisconsin Street, Kenosha.

The Standish Engineering Corporation, 400 North Michigan Avenue, Chicago, is low bidder at $154,046 for erecting a new State highway bridge across the Wisconsin River between the towns of Muscoda and Eagle in Grant and Richland counties, respectively.

The General Tool & Mfg. Co., 382 Fourth Street, Milwaukee, has filed a voluntary petition in bankruptcy. Schedules claim assets of $9,550 and admit liabilities of $33,942. A. W. Foster is attorney.

St. Louis

ST. LOUIS, Aug. 23.

THE City Council, Princeton, Mo., plans an early call for bids for a steel water tank and tower, to be used in connection with extensions in the municipal waterworks. The Shockley Engineering Co., Graphic Arts Building, Kansas City, Mo., is consulting engineer.

The Sapphire Coal Co., 1304 West Twenty-eighth Street, Kansas City, Mo., plans the early purchase of equipment for its plant, including mechanical loading apparatus, chutes, unloading trestles, scales, etc.

The Board of Education, Olathe, Kan., is considering the installation of manual training equipment in a proposed two-story and basement high school, estimated to cost $150,000. Owen, Saylor & Payson, Interstate Building, Kansas City, Mo., are architects.

The Chicago, Burlington & Quincy Railroad Co., Chicago, is said to be planning the construction of a one-story locomotive repair shop at Bridgeport, Neb., to cost approximately $35,000, with equipment.

The Economy Steel & Mfg. Co., 3805 Easton Avenue, St. Louis, has inquiries out for a flanging machine; also, for a corrugated curving roll.

The Chicago & North Western Railroad Co., Chicago, has awarded a general contract to G. A. Johnson, 1335 North Clark Street, Chicago, for a one-story addition to its engine house and repair shop at Fremont, Neb., to cost about $35,000.

The J. M. McGinniess Vehicle Wheel Co., P. O. Box No. 157, Trinidad, Colo., has been incorporated to manufacture automobile wheels. The company would like to receive catalogs and other information on presses for manufacturing such wheels.

Pittsburgh

PITTSBURGH, Aug. 23.

MACHINE tool business has quieted down in this district in the past week, but has not made a bad showing as compared with that of other years at this season. The year to date has been the best in point of business the trade here has had since 1923.

The Boulevard Garage Corporation, Pittsburgh, care of Kenneth Ketchum, 207 Commonwealth Building, has preliminary plans under way for a proposed multi-story service, repair and garage building in the downtown district, estimated to cost $1,200,000. Jansen & Cooken, Century Building, are architects.

The Waynesburg Borough Board of Education, Waynesburg, Pa., plans the installation of manual training equipment in its proposed new high school, estimated to cost $215,000.

The Pittsburgh Plate Glass Co., Frick Building, Pittsburgh, has authorized the modernization of its complete river fleet, replacing all present floating equipment of wood with steel units. Orders will be placed in the near future for four steel barges, two steel dump scows and a derrick boat.

The United States Engineer, Huntington, W. Va., is asking bids until Aug. 30, for one single-stage air compressor, with electric motor and control equipment, circular 20.

The Guyan Machine Shops, Logan, W. Va., machinery dealers, have been making inquiries for several 2 to 3-ton capacity hoists, to be operated on steel I-beams; also for a number of motors, from 5 to 20 hp. capacity, each, both a.c. and d.c. types.

The Oliver Township and McVeytown School Districts, McVeytown, Mifflin County, Pa., plan the installation of manual training equipment in a proposed new three-story and basement junior high school for joint service, reported to cost about $165,000.

The Pittsburgh Parts Mfg. Co., 207 Sandusky Street, Pittsburgh, has been incorporated with capital of $50,000 and has engaged in the manufacture of replacement parts for automobiles. L. M. Barton is secretary.

The L. A. Green Railway Equipment Co., First National Bank Building, Pittsburgh, has purchased from the Interstate Pipe Co., which is in process of dissolution, its stocks of tubing, casing and line pipe located at St. Louis, Houston, Memphis and Casper, Wyo. The total amounts to between 500 and 600 tons.

The Fort Pitt Mine Equipment Co., Pittsburgh, has been organized as successor to the G. M. Johnson Co., Jeannette, Pa., and will manufacture automatic gravity feeds, all steel safety mine cages, safety horn car stops, chain rail car conveyors and automatic stopping, locking and releasing systems for mine cages. The following officers have been elected: Frank J. Lanahan, president; E. W. Wright, vice-president; P. J. Meehan, secretary and treasurer; M. E. Nolan, general sales manager, and Louis E. Endsley, consulting engineer.

The Warwood Tool Co., Wheeling, W. Va., is in the market for a used Brinell hardness testing machine.

Cincinnati

CINCINNATI, Aug. 23.

MACHINE tool sales increased slightly the past week, and some local builders report that bookings in August will exceed those in July by a comfortable margin. With few exceptions, however, transactions have involved only single machines. Railroads continue to purchase small lots of tools, a number of carriers having closed for equipment in the past week. Automobile makers in the Detroit district again are buying machinery and are inquiring for sizable quantities of machine tools.

The United States Electrical Tool Co. has sold 25 heavy duty pedestal-type grinders to four industrial plants, while a local builder has booked 18 17-in. lathes for an automobile manufacturer. Other sales in this market include a 36-in. x 12-ft. planer for the National Tool Co., Pittsburgh; a Racine motor-driven saw for the Green Bay, Wis., shops of the Chicago & North Western; a Ransom No. 131 grinder for the New York Central; a Ransom No. 111 grinder for the Steacy-Schmidt Mfg. Co., York, Pa.; a 24-in. motor-driven drill for the Nash Motors Co., Kenosha, Wis.; an Acme 2-in. motor-driven bolt cutter for the DuQuoin, Ill., shops of the Southern Illinois & Kentucky Railroad; an Acme 1½-in. motor-driven double bolt cutter for the Illinois Central at Waterloo, Ia.; an Acme 2-in. motor-driven double bolt cutter for the Gulf & Ship Island Railroad at Hattiesburg, Miss.; a Diamond motor-driven swing frame grinder for the Atlantic Coast Line; and a 26-in. Worcester motor-driven shaper for the Columbia Steel & Shafting Co., Rankin, Pa.

The D. L. Auld Co., East Fifth Avenue and Fifth Street, Columbus, Ohio, manufacturer of metal name plates, has awarded a general contract to the T. J. Schirtzinger Co., 1535 North High Street, for a one and two-story addition, 73 x 75 ft., estimated to cost $40,000 with equipment. S. G. Brook is secretary and treasurer.

The Casey-Hedges Co., Chattanooga, Tenn., manufacturer of boilers, tanks, etc., will soon begin work on a proposed addition, one-story, 100 x 500 ft., to cost in excess of $60,000 with machinery, to be equipped for the manufacture of steel barrels and drums.

The Holthouse & Hartup Co., Lawrence, Tenn., has inquiries out for a sanding machine, hollow-head type, preferably automatic.

The Board of Education, Berea Township, Berea, Ohio, plans the installation of manual training equipment in a proposed two-story high school at Bayley Road and East Avenue, estimated to cost $600,000, for which bids will be received on general contract until Sept. 11.

The Tennessee Products Co., American Trust Building, Nashville, Tenn., has acquired the properties and equipment of Durham Coal & Iron Co., Chattanooga, Tenn., and vicinity. Plans are under advisement for early expansion, including the installation of additional equipment for increased capacity.

Gulf States

BIRMINGHAM, Aug. 23.

THE National Power & Light Co., Birmingham, operating the Birmingham Electric Co., Houston Lighting & Power Co., Houston, Tex., and other light and power utilities, is disposing of a bond issue of $9,500,000, a portion of the proceeds to be used for extensions and improvements in properties. E. W. Hill is vice-president.

The Anderson Brass Works, 700 North Forty-fourth Street, Birmingham, will soon begin work on a one-story addition, 70 x 105 ft., to be equipped as a foundry. Facilities will be provided for an initial output of about 2000 lb. per day.

Charles P. Staley, Fort Myers, Fla., city manager, is asking bids until Sept. 10, for equipment for water supply and sewage system improvements, including ten automatic lift or pumping stations, and other pumping and mechanical equipment. George W. Simons, Jr., 15 Julia Street, Jacksonville, Fla., is consulting engineer.

The Yount-Lee Oil Co., San Jacinto Life Building, Beaumont, Tex., has acquired a tract of about 1300 acres of land on the Neches River, as a site for a proposed storage and distributing plant. The initial installation will consist of about 100 steel tanks, each 55,000 bbl. capacity, pumping machinery and auxiliary equipment.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealers, have inquiries out for a locomotive crane, about 20 tons capacity, also, for an engine-generator set, 150 to 250 kw. capacity, engine of Corliss type, and for a similar unit of about 300 kva. rating.

The United States Engineer, Galveston, Tex., is asking bids until Aug. 30, for 500 condenser tubes, and 1000 condenser tube ferrules, circular 28.

Thurman G. Frazee, First National Bank Building, Houston, Tex., has been appointed Texas representative for the McMyler-Interstate Co., Cleveland, manufacturer of locomotive and crawler cranes, power shovels, clamshell buckets and material handling equipment.

The Leak Proof Roofing Co., Fort Worth, Tex., has been incorporated to manufacture and deal in various types of roofing including composition and metal roofing.

Indiana

INDIANAPOLIS, Aug. 23.

THE Parts Corporation, 733 Virginia Avenue, Indianapolis, manufacturer of automobile parts, has awarded a general contract to the Hall Construction Co., Board of Trade Building, for the proposed one-story additions to its plant, estimated to cost $30,000.

The Hupp Motor Car Corporation, Mount Elliott and Milwaukee Avenues, Detroit, manufacturer of Hupmobile cars, is said to be arranging for the construction of a new branch plant at Evansville, Ind., to be used exclusively for the production of truck bodies. Joseph B. Graham, president of the Hercules Corporation, Evansville, manufacturer of electric refrigerating equipment, is interested in the project.

The Board of Education, La Fayette, Ind., contemplates the installation of manual training equipment in a proposed new addition to the high school, estimated to cost $350,000, for which bids will be asked on general contract in the near future. Walter Scholer, La Fayette, is architect; R. W. Noland, La Fayette, is mechanical engineer.

The Chicago & Eastern Illinois Railway Co., 332 South Michigan Avenue, Chicago, is said to be considering the construction of a one-story forge and blacksmith shop at its repair yards at Evansville, Ind., to cost approximately $70,000 with equipment.

The Weyman Motor Body Corporation, London, England, has negotiations under way for a lease of the former plant of the National Motor Car & Vehicle Corporation, Twenty-second Street and the Monon Railroad, Indianapolis, for the establishment of a branch plant in the United States. F. E. Moskovics, president of the Stutz Motor Car Co., Indianapolis, recently back from a trip abroad, is said to be interested in the proposed Weyman branch plant.

The Board of Education, Gary, Ind., contemplates the installation of manual training equipment in its proposed high school addition, estimated to cost $500,000, for which bids will be asked on general contract in the near future. William B. Ittner, Board of Education Building, St. Louis, is architect.

The Cabinet Burner Co., 435 Massachusetts Avenue, Indianapolis, has been incorporated to manufacture oil burners for domestic use. The company will make all cast iron parts in its own plant and other parts will be bought in the open market.

Pacific Coast

SAN FRANCISCO, Aug. 20.

THE Pioneer Rubber Mills, Pittsburg, Cal., are having plans drawn for a new one-story plant, 110 x 250 ft., to cost close to $100,000, including machinery. Benjamin G. McDougall, 353 Sacramento Street, San Francisco, is architect.

The Santa Barbara School District, Santa Barbara, Cal., has plans under way for manual training shops at the local high school, estimated to cost $130,000, with equipment. W. H. Weeks, Ray Building, Oakland, Cal., is architect.

The Ford Motor Co., Detroit, has engaged Albert Kahn, Marquette Building, architect, to prepare plans for its proposed new plant at Long Beach, Cal., where a tract of land recently was acquired. The works will be devoted to assembling, and will consist of one-story units totaling about 300,000 sq. ft.

J. Edwin Johnson, Vale, Ore., and associates have made application for permission to appropriate waters from the middle fork of the Malheur River, a tributary of the Snake River, in Harney County, for a proposed hydroelectric power project, estimated to cost about $400,000, with transmission system.

The State Highway Commission, Sacramento, Cal., will proceed with the construction of a new repair and maintenance shop, with pumping plant and other service buildings for highway motor trucks and equipment at Bishop, Inyo County.

Fisher Body, Inc., Oakland, Cal., manufacturer of automobile bodies, has awarded a general contract to the Dinwiddie Construction Co., Crocker Building, San Francisco, for a new two-story addition, estimated to cost $40,000, with equipment. T. Ronneberg, Crocker Building, is architect.

The W. H. Worden Co., San Francisco, has been appointed representative for the McMyler-Interstate Co., Cleveland, manufacturer of locomotive and crawling cranes, power shovels, clamshell buckets and special handling equipment, and will handle the company's products in California, Arizona and Nevada. The Hofius Steel & Equipment Co., Seattle, has been made its distributer in Washington, Oregon and Idaho.

Canada

TORONTO, ONT., Aug. 23.

WHILE demand for machine tools fell off during the first couple of weeks of this month, the market is by no means dull, and sales so far this month exceed those of a year ago. Canadian builders and dealers are preparing exhibits for the Canadian National Exhibition which opens Aug. 28, and it is expected that these showings will give impetus to the demand.

There is considerable building under way in this country with regard to new plants and additions and as many of these are now nearing the stage where equipment will shortly be required, dealers are looking for general improvement in the demand for tools of a diversified nature. Canadian builders of tools and machinery are being asked to bid on equipment required for plants and Government railroads and works in other British Dominions, which will stimulate exports of equipment. The current tool demand is chiefly for single tools on replacement account. Second-hand and rebuilt tools are also moving fairly well and a strong demand is reported for small tools.

The Dominion Alloy Steel Corporation, Sarnia, Ont., is preparing to increase its output and will install considerable new equipment. The company purposes to bring its output of galvanized sheets up to 1000 tons per month, and at the present time is operating two shifts per day of 12-hr. each. W. B. Boyd, president, says it has sufficient orders to enable it to continue capacity operations for three or four months.

The Crown Reserve Mining Co., Larder Lake, Ont., is endeavoring to raise $400,000 for the purpose of carrying out further development and to build a mill there.

The Niagara Wire Weaving Co., Niagara Falls, Ont., will build an addition 110 x 120 ft., which will be equipped to manufacture wire cloth screen 270 in. in width for the paper mills of Canada.

The Johnson Wire Works, Dagenais Street, Montreal, Que., has taken out a permit for a $25,000 addition to its plant.

The Toronto Steam Bath Co., Ltd., Toronto, Ont., has started work on the erection of a plant at Peter and Richmond Streets to cost $30,000.

The Central Spring Co., Oshawa, Ont., has started work on an addition to its plant and will purchase additional machinery.

The Dominion Construction Co., Ltd., 917 Keefer Building, Montreal, Que., has been awarded general contract for the construction of the main dam, tunnel and power house in connection with power development to be carried out by the St. John Power Co., at Grand Falls, N. B., to cost $1,500,000.

Bids are being received by the Noranda Mines & Copper Corporation, Ltd., Keefer Building, Montreal, Que., for the erection of a smelter at Rouyn, Que., to cost $1,000,000.

The Canadian Radiators, Ltd., Hamilton, Ont., have acquired the Monarch tractor building at Brantford, Ont., where it will begin at once to manufacture radiators and parts. Some improvements and additional machinery will be installed in the plant.

The Dominion Truck Equipment Co., South Street, Kitchener, Ont., will build a factory to cost $10,000 and will soon be in the market for equipment.

Western Canada

The Canadian Westinghouse Co., Winnipeg, Man., will build a two-story addition to its plant.

The Western Steel Products Co., Calgary, Alta., has completed an addition to its plant and is installing equipment to double the present capacity of its plant.

The United States Horseshoe Co., Erie, Pa., has purchased the plant of the Canadian Western Steel Corporation at Medicine Hat, Alta., and it is also stated that the company is contemplating buying the Radcliffe Rolling Mills, and will remove the equipment of the latter works to Medicine Hat so as to enlarge the plant there for iron rolling purposes.

The Port Alberni Marine Railway & Machine Co., Nanaimo, B. C., which was destroyed by fire a short time ago, has rebuilt its plant on the old site and has installed new machinery.

Foreign

THE Federal Government of Mexico, Mexico City, has approved plans for harbor improvements at the Port of Mazatlan, west coast of Mexico, estimated to cost close to $3,000,000. The project will include modern wharves and 300-ft. steel and concrete pier, to be provided with hoisting, conveying and other mechanical cargo-handling machinery. The American Consulate, Mazatlan, Sinaloa, J. Winsor Ives, vice-consul, has information regarding the project.

The J. G. White Engineering Corporation, 43 Exchange Place, New York, is establishing an engineering camp on the Rio Manta, near Xicotencatl, State of Tamaulipas, Mexico, to begin work on a large irrigation and power project, for which a contract recently was secured from the Mexican Federal Government. It is purposed to irrigate and reclaim about 25,000 acres of land, with ultimate development of close to four times this area.

The Société des Tramways Smyrne-Gueuextepe, Smyrna, Turkey, is arranging for the immediate erection of a new power plant in the vicinity of Daragatch. The station will be equipped for an initial output of 5000 hp., and ultimate capacity of 30,000 hp. The American Consulate, Smyrna, Samuel W. Honaker, consul, has information regarding the project.

The Michelin Tire Co., Stoke-on-Trent, England, affiliated with the company of the same name with headquarters at Milltown, N. J., has work under way on a new tire and rubber goods manufacturing plant at Stoke-on-Trent, reported to cost in excess of $150,000 with equipment. The city government of Stoke-on-Trent has preliminary plans under way for an extension in the municipal electric power station to develop an increase of about 10,000 kw., using steam-turbo generating unit; a considerable portion of the output will be used for service at the new Michelin mill.

The Sevillana de Electricidad, Sevilla, Spain, has arranged for an increase in capital from about $5,700,000 to $7,100,000 (40,000,000 to 50,000,000 pesetas), and has plans under way for a hydroelectric power development on the Cala River, near Sevilla, to develop an ultimate capacity of 124,000 hp. The American Consulate, Madrid, Spain, Charles H. Cunningham, commercial attaché, has information regarding the project.

Lake Superior Corporation

The Lake Superior Corporation, Sault Ste. Marie, Ont., in the year ended June 30 last showed distinct improvement over the previous fiscal year. Net earnings from operations of subsidiary companies, excluding the Algoma Central and Hudson Bay Railroad companies, totaled $724,248, against $28,685, an increase of $695,562. Interest on bonds of subsidiary companies, on bank and other advances and rentals (less interest earned on bank balances and rentals) amounted to $1,248,959, a reduction of $27,260. The amount for depletion and depreciation of mining properties and quarries was increased by $16,740 to $95,142. The net loss for the year reached $619,853, compared with $1,325,936 in the previous year. The better showing was made possible by general improvement in business and by substantial increase in the tonnage handled, the figures of which compare with those of the previous year as follows:

	1925-26 Tons	1924-25 Tons
Coal imported	462,036	268,790
Ore imported	263,937	216,144
Limestone produced	147,540	107,024
Coke produced	264,500	218,197
Pig iron produced	170,196	155,364
Steel ingots produced	185,149	159,251
Steel products	139,019	123,635

While rail tonnage has been far below normal, the year shows improvement. Due to increased sales of merchant mill products, especially alloy steel, and improved operating practice, the net operating loss of $324 last year was changed to a net operating profit of $393,146. The use of coke for domestic purposes in lieu of anthracite coal has been developed in Canada, and the company's screening and shipping facilities are being extended to take advantage of this market. Total sales of products in 1926 amounted to $8,792,660, compared with $7,468,810 in 1925. The value of orders on hand at June 30 last was $1,628,662, made up of coke, rails, pig iron, and sections for small mills.

Financial Items

Net earnings of the General Fireproofing Co., Youngstown, for the second quarter after depreciation and allowance for preferred dividends, but before Federal taxes, were $295,609, equivalent to $3.62 per share on the 81,740 shares of common stock. The first quarter's earnings were $199,887, or $2.44 per share on common.

The Valley Mould & Iron Corporation, Sharpsville, Pa., has declared a dividend of 5¼ per cent to cover arrearages on its preferred stock, in addition to the regular quarterly dividend of 1¾ per cent.

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NEW TRADE PUBLICATIONS

Automatic Screw-Driving Machine.—Metal Saw & Machine Co., 40 Napier Street, Springfield, Mass. Loose-leaf catalog of 16 pages describing a machine to drive both wood screws and machine screws. It is attached to a drilling machine for this purpose.

Punching and Shearing Machines.—Henry Pels & Co., Inc., 90 West Street, New York. Catalog devoted to hand-operated punching and shearing machines with steel-plate frames. The machines shown include long blade plate shears, combination splitting shears and punching machines, triple-combined punch, shear, bar, angle and tee cutters, and shears with bending attachment for reinforced concrete bars. Many of the models are mounted on trucks for portable use. All units are attractively illustrated, and dimensions are given.

Worm Reduction Gears.—De Laval Steam Turbine Co., Trenton, N. J. Bulletin describing the company's worm reduction gear with pressure oiling system. A sectional view in colors shows the gear type oil pump and other units of the lubrication system.

Automatic Lathes.—Cone Automatic Machine Co., Inc., Windsor, Vt. Booklet of 54 pages, describing the company's automatics, which are available in sizes of ⅞, 1¼, 1½ and 1⅞ in. Illustrations are numerous and includes parts and mechanism detail. A chart of the regular cam layouts and tables of change gears and cutting speeds are included. The catalog is comprehensive in the data presented and is well arranged to facilitate reading and reference.

Fluid Meters.—Cochrane Corporation, Seventeenth Street and Allegheny Avenue, Philadelphia. Monthly issue of the company's Bulletin, devoted to a description of fluid meters, including pipe flow meters for steam, water, air and gases, V-notch meters, weighing meters and volumetric meters. Comprehensive information is furnished including many diagrams, illustrations and tables.

Malleable Iron.—American Malleable Castings Association, Union Trust Building, Cleveland. An attractively prepared booklet of 32 pages giving a comprehensive account of the origin, development, valuable properties, methods of manufacture and uses of certified malleable iron.

Hot Water Storage.—Cochrane Corporation, Seventeenth Street and Allegheny Avenue, Philadelphia. Bulletin devoted to information on the storage of hot water in connection with exhaust steam heaters. Various arrangements of different types of heaters are shown and also hook-ups for installation in paper mills, bleacheries, laundries, tanneries and similar establishments. Another leaflet is devoted to a description of the company's deaerating heater designed to prevent corrosion of boilers in steam plants.

Foundry Specialties.—Chicago Mfg. & Distributing Co., 4010 Wells Street, Chicago. Annual catalog with brief descriptions of bag-holders, foundry floor boards, cores, portable derricks, upset forgings, hammers, wrought iron, sheet metal work skimmers, trucks, woodwork and ratchet wrenches.

Electrical Relays.—Roller-Smith Co., 233 Broadway, New York. Bulletin No. 550, giving description with full technical details of the company's type SR relays, designed to supersede its old Imperial type. The new line includes reverse current, overload, underload and closed circuit relays. Over-voltage, under-voltage and time limit relays are also dealt with.

Loading Machines.—Webster Mfg. Co., 4500-4560 Cortland Street, Chicago. Catalog No. 45, describing the company's Mayne loader for handling broken ore and rock in mine tunnels. Illustrations are given and full specifications of the machine.

Centrifugal Pumps.—De Laval Steam Turbine Co., Trenton, N. J. Illustrated pamphlet describing the company's turbine driven centrifugal pumps in use at the Fairmount Pumping Station of Cleveland. Diagrams and tables of specifications furnish wide information about the units which are equipped to deliver from 20,000,000 to 75,000,000 gal. per day against heads varying from 86 to 400 ft.

Spiral Riveted Pipe.—American Spiral Pipe Works, Chicago. Illustrated folder, announcing with descriptive particulars that the company's spiral riveted pipe is now made with copper bearing steel.

The Bacharach Industrial Instrument Co., 7000 Bennett Street, Pittsburgh, has begun the publication of a monthly bulletin dealing with industrial instruments and the history of their development.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

When a man is past the half-century mark, that climb up to the seventh tee is a little hard on the wind. So the question F. Wellington Jenkins, the well-known manufacturer of motors, put to John G. Alexander, who makes stoves, came in staccato:

"For a long time I've wanted to ask you about your labor turn-over. How do you keep it so low?"

John G.'s eyes began to glisten with the light that appears in the optics of a new father when you inquire after the health of his first-born. Away went his cigar; he laid down his mid-mashie, and motioned F. Wellington to sit down on the bench. Then he began.

"I can tell you in exactly seven words. *We have a well-conducted employees' magazine.* Of course, we pay good wages, but no more than anyone else in our line. And we try to make the plant a pleasant place to work in; but the outstanding factor has been the magazine.

"It's my baby, nine years old now. The whole thing doesn't cost us more than two thousand dollars a year, but it has proved so valuable to us that we wouldn't stop it if it cost ten times that.

"However, I don't want you to get the impression that I believe anybody can cut his labor turn-over simply by starting up a plant paper. Some that I've seen don't do a bit of good, and I know of more than one case where they have actually done harm. The thing has to be done right, and if you are interested I'll tell you in two minutes what our experience has been in getting out a paper that helps make a man stick to us when he knows he might make a little more somewhere else."

Without waiting for a reply he continued:

"Make it a genuine plant newspaper. Fill it full of personal items. Nothing is so interesting to anyone as seeing his own name in print. Johnny Brown won't miss a word of the item about Bill Jones' buying a new flivver, while your column and a half on the glorious future of your company will go by the board unread. Cut the sermons down to the minimum.

"And by all means exercise a rigid censorship over the news, especially the personals, for some people have an indelicate sense of humor. In our organization we require the editor to submit the personal items to the foremen of the various departments before printing. In that way we steer clear of anything that might engender bad feeling.

"In a nutshell, the secret of a successful employees' magazine lies in making it interesting to the man in the shop, for whom it is issued, rather than loading it with material aimed to please the boys in the front office, for whom it is not issued."

So saying, John G. swung his trusty iron, and away sailed the ball, slicing toward the rough, as usual.

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"What is a 'kerf' anyway?" I wondered, when the first copy of *The Saw Kerf*, E. C. Atkins & Co.'s new magazine, arrived. Webster explains that it is the channel cut by a saw. Probably derived from the same root as "carve." The little publication is distinctive and invites reading. Though the editor's name is omitted, I suspect it is Tom Carroll, Atkins's likable advertising manager. A. H. D.